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THE AMERICAN

JOURNAL OF PHARMACY

JUNE, 1920

EDITORIAL.

THE SIXTY-EIGHTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The 1920 meeting of the American Pharmaceutical Association, held in the New Willard Hotel, in Washington, May 6 to May 10, is now an event of the past. The Capitol city, always beautiful, looked at its best with the bright foliage of the full spring time enriching the landscape view. With ideal weather and an attentive local committee under the able chairmanship of Samuel L. Hilton, determined to make every one enjoy himself or herself to the utmost, another memorable cycle in the history of American pharmacy was completed. The space at our command will not permit of a recount of much that occurred and so we can only here record some of the occurrences that impressed themselves upon the writer as the high spots of the convention.

Wednesday, May 5, the day immediately preceding the opening of the A. Ph. A. meeting, was devoted to meetings of the collateral associations, the National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties. Probably the most important action considered by the latter body was the recognition of the fact that two years for the instruction in the course for pharamacy students, as outlined by the Syllabus, was totally inadequate. The conclusion arrived at was that commencing with 1925 this should be lengthened to a three-year course of instruction. Thoughtful pharmacists long ago realized that a sound professional superstructure, the pharmaceutical education now necessary, could not be erected, even with the improved foundation assured, in two years of collegiate instruction. It appears to us as a rather anomalous position that this conference, many of whose leading

members have been so vociferous in proclaiming for higher professional pharmacy, should have been so slow in recognizing the necessity for a more thorough collegiate education as a basis for professional status and still more strange that having come to such a realization that a public acknowledgment was required, they should still persist in delaying for five more years a reform that should be inaugurated at once. The arguments used as a justification for this postponement are not at all consistent with the ideals that have been professed.

The first general session of the American Pharmaceutical Association was opened on Thursday, May 6, at 3 P.M., in the small ballroom on the tenth floor, and without unnecessary formalities. Local Secretary Hilton announced that the policy of the American Pharmaceutical Association was to receive the credentials of the delegates from the Government Departments and from other Associations and to refer these to the House of Delegates and in the meetings of this House these delegates would have the privilege of presenting whatever messages they had to convey.

President L. E. Sayre called Vice-President T. J. Bradley to the chair and read his presidential address. In this the various topics that are at this time demanding consideration of pharmacy and several internal problems of the Association were discussed in a manner that demonstrated that the President had deliberated on these and had a clear conception of their importance and had arrived at a definite conclusion on a number of them.

The efforts of the A. Ph. A. to interest veterans of the World War in the work of the Association through the medium of an "Advisory Committee" and later the creation of a War Veterans' Section was recounted. His reference to the centennary of the U. S. Pharmacopoeia and the discussion of the vexing question of what should be included in the U. S. P. and the N. F., was thoughtful and consistent and the conclusions quoted such as we can endorse as to the best interests of the professions which these volumes serve.

"As long as medicine is both a science and an art, and so long as clinical therapeutics is able to produce results by the use of remedial agents whose worth cannot be demonstrated by the pharmacodynamic experiment, we will be forced to admit drugs and preparations of both classes. To do otherwise would be tantamount to destroying the work of centuries of experience and dogmatically asserting the value of scientific method which has not yet been able

fully to prove itself. No one will claim that the present scope and content of the U. S. P. is perfect and beyond reproach. A certain amount of judicious "pruning" must be done with each successive revision. Even the ardent conservatists do not believe in keeping worthless material in an official volume. They do, however, most emphatically insist that until there is proof positive, not alone by the methods of experimental pharmacology, but also by the bedside experience, that a drug is worthless, that it be recognized and standardized as are those of more evident potency.

"If we should agree to limit as useful drugs and preparations those only that give visible results in the pharmacological laboratory, and recognize for standardization only these, I am convinced we should be guilty of unfair treatment to the art of medical practice.

"Until medicine and pharmacy shall become more exact sciences than they are to-day, there will always be plenty of room for a difference of opinion as to what is valuable and what is not among the remedial agents which are now recognized; what is worthy of recognition in the United States Pharmacopoeia and National Formulary and what shall be excluded as unworthy of such recognition from these volumes. The policy of admission into these national publications has been very largely based upon what is generally accepted as remedial in character by the medical profession as a whole; not by the few, but the many, who find occasion for their use. What is thus regarded as useful by the many, it is believed, should be standardized as far as pharmaceutical and medical science may accomplish this end. It is interesting to note here how doctors disagree as to what is and what is not useful. A prominent physician made to me the significant remark: 'As long as clinical data and laboratory findings are at such variance it is unwise to be opinionated on the point of drug values.' It should always be borne in mind that U. S. P. and N. F. recognition does not carry with it a favorable recommendation. The U. S. P. and N. F. are not to be considered as treatises on therapeutics, but that they have the same relation to medicine as the United States publications containing certain standards for foods have to the public. What the public uses as foods is included in the U. S. standard for them. It must be admitted that a certain kind of prestige is given to a remedial agent when it is admitted into either the U. S. P. or N. F., but if one mistakes this kind of prestige for a recommendation the fault lies with one's power of discrimination."

The treatment of the subject of prohibition and the duty of pharmacy under the Congressional enactment for its enforcement is in full accord with the editorial position on this subject assumed by the AMERICAN JOURNAL OF PHARMACY.

"Pharmacists, and revisers of our national standards for drugs, have been brought face to face with problems connected with the administration of the prohibition law. This law, aside from its strictly moral phase, is an expression of the decent element of society irrespective of party against intemperance and the saloon. One of our English writers has said that, speaking from a European point of view, one of the curious things about the adoption of prohibition in the United States, extremely characteristic of the American temperament, is the good-natured way in which it was accepted. Men who were not prohibitionists, many who had drunk all their lives and believed that liquor was necessary for their well-being, have made willing sacrifice. Whether this critic understands the American psychology or not, the liquor interests are practically out of business. This is a condition, not a thoery, the public faces, whether good-naturedly or not. As to the pharmacists, they have as a class been advocates of prohibition, and they very naturally resent, after being recognized by the Government as legal custodians of medicinal alcoholic liquids (including medicinal liquors), being classified as *retail liquor dealers*. It is worthy to note in passing that the Volstead Act is a distinct recognition of the pharmacist as a proper dispenser of medicine and that the dispensing of alcoholic liquors can be controlled through the profession of pharmacy. Since the Volstead Act recognizes the sale of distilled spirits and wines for medicinal purposes and other prescribed non-beverages and places upon the pharmacist alone the responsibility of dispensing them for medicinal use, the contention may fairly be held that, the sale of intoxicating liquors for beverage purposes being no longer lawful, to license a pharmacist as a liquor dealer as now prescribed by statute makes him appear to be a violator of the purpose and intent of the prohibitory law; this is unjust. If the Government wishes to recognize as a public need the sale of spirits and wines for medicinal purposes and places this task (and it will be a task) on the pharmacist, it should not begin by prejudicing the public against the pharmacist by designating him as a vender of the very articles the sale of which the country has specifically chosen to prohibit.

"Council letters presenting the situation indicate that a protest

should be made—one that will doubtless meet the hearty approval of this Association and one that will result probably in the elimination of the objectionable title. We are told that an Act of Congress would be necessary to change the classification. Doubtless our Congressmen will appreciate the fairness and justness of this protest and it is to be hoped that our Association, at this time, will provide proper measures, through the Council, to bring about a relief to pharmacists from the odium which this unfortunate classification brings. By headlines and articles, by what should be considered as unwarranted reflections upon the profession, sensation mongers, in exploiting their trade, are doing much to make this odium more difficult for the professional pharmacist to bear. It may be said, in this connection, that one of the prominent members of the Council believes that the pharmacist should be entirely relieved of dispensing of liquor and the Government should be asked to assume the sole responsibility of dispensing it. It is the opinion of your president that the dispensing of medicines is a duty properly belonging to the pharmacist. So long as those liquors, the sale of which has been prohibited except as medicine, are regarded as remedial agents, it would certainly be an evasion of responsibility to decline to perform this service of dispensing. If any pharmacist degrades himself and his calling by illegally dispensing these medicinal agents, he should be held responsible and prosecuted the same as if he wilfully violated the narcotic law.

"As unpleasant and unfortunate as it may appear, should we not be true now to the duty placed upon us, and in the meantime may we not, by constant and persistent research, reduce the use of liquors in every way feasible and endeavor to find a proper and adequate non-habit producing substitute for them? Here is a field of investigation worthy of the coöperation of the pharmaceutical and medical professions."

Among the topics of internal interest to the Association was the question of the *Journal of the American Pharmaceutical Association* and the various suggestions that had been offered for changing the scope and improving the *Journal* and for increasing the activities of the the Association by increasing the income from dues. It may be said in passing, later it was determined that at least some of these questions will be submitted to the membership in a referendum vote to be taken by mail.

The question of pharmaceutical research has been one of the

uppermost topics for several years and this not only occupied attention through the presidential reference to the subject but cropped out in the report of the Committee on Research and also in the discussions in the sessions of the Association and of its Council.

The President's estimate of the Council and its work and especially that of the Executive Committee of the Council which merited his approval is in marked contrast with some of the criticisms that have been made of the actions and recommendations emanating from the St. Louis meeting of this Committee held during the year.

Following the reading of the President's address the Nominating Committee was appointed and again discharged its duty in the same way that has been so frequently criticized and which by a majority vote the members present at a later meeting determined to continue.

An adjourned meeting was held on Thursday evening preceding the President's reception. An address was delivered by Dr. C. E. McClung, representing the Division of Medical Sciences of the National Research Council. The speaker detailed the methods that had been adopted for the organization of this Research Council and the distribution of the millions of dollars that had been subscribed for promulgating scientific researches. It was only too apparent to his audience that the possibilities of pharmacy as one of the most important fields for research for the benefit of mankind had not been given proper consideration.

Happily, Prof. J. U. Lloyd was called upon to respond to Dr. McClung and in his inimitable manner he very cleverly pointed out the inexhaustible fields from which pharmacy draws her stores; how every portion of the globe, every natural kingdom, the air and earth and its mines, as well as the animals and vegetation that thrived thereon, supplied the remedial agents employed by the pharmacist and the unlimited fields for investigation for the advancement of science and the sum of human knowledge to the benefit of mankind was opened through pharmaceutical research in the special fields that the researches spoken of as contemplated did not cover.

Despite the fact that but eight months had elapsed since the prior meeting was held in New York, there was no lack of papers and each section was able to arrange an interesting program. In recent years the Section on Commercial Interests has forged ahead with addresses on timely subjects by leading authorities and this again was in evidence at the Washington meeting. On Saturday morning,

Mr. Merle Thorpe, the editor of the *Nation's Business*, the magazine published by the Chamber of Commerce of the United States, delivered a most enlightening discourse upon the ethics of business. Taking as his title, "Business is Business," his audience was treated with a presentation of the modern methods of the model man of commerce and a view of the expanding field of commercial enterprise and export trade in various lines open to the industries of the United States. He closed his discourse by reading a poem to Spring, whose serio-comic lines filled his audience with visions of the happy days when they were "filled with Juniper and Sassafras" and left them convulsed with mirth and enjoyable delight.

Prohibition Commissioner John F. Kramer then addressed the meeting on the subject of the work of the prohibition enforcement division. The prohibition of the liquor traffic for beverage purposes was not only a radical but also a very sudden change in the policy of this Nation and the work of organizing a governmental department to enforce the legislation enacted was a gigantic task, a big job for any man, but they were going to get away with it. The progress already made was satisfactory and the attitude of the people of this country showed that prohibition was here to stay. He expressed his sympathy with pharmacists upon whom the Volstead Act had placed greater responsibilities as the sole dealers in alcoholic liquors at retail. He was of the opinion that the liquor dealer as a handler of beverage spirits was a thing of the past and that the treasury laws and regulations should be modified so that the title of "Retail Liquor Dealer" would not be retained for the pharmacist who was granted a permit under the Enforcement Act to use and sell non-beverage spirits for medicinal purposes.

He expressed himself as gratified as to the attitude of helpful co-operation with his department that had been shown by representative men in pharmacy and the drug trade organizations and appealed for universal assistance from the druggists as the class of men whose interests were the most affected by prohibition legislation.

Immediately following Commissioner Kramer, Mr. William L. Crounse, Attorney for the National Wholesale Druggists' Association, read a carefully prepared paper on "Alcohol—Its Importance in Science and Industry." In this the writer declared that alcohol was the most essential chemical raw material known to science. He criticized the attitude of the prohibition zealot and the ignorance of this class who were continuously guilty of gross misrepresentation

of the necessary uses of alcohol as a basic material in pharmacy and the chemical industries. His comments upon the work of the Bureau of Internal Revenue should be viewed as constructive criticism of value to the officials thereof. His review of the divided opinion among pharmacists themselves as to the proper attitude that they should assume regarding the dispensing of liquors on prescription, was a very fair presentation of an unfortunate difference. This address, we hope to publish in full in the next number of the JOURNAL.

One of the most encouraging signs of the time, was the changed attitude of the Governmental Departments concerning pharmacy. On the opening day of the meeting of the A. Ph. A., a committee composed of members of the Committee on Status of Pharmacists in the Government Service, had very pleasant interviews with Secretary of the Navy Daniels, Admiral Thos. Washington, head of the Bureau of Navigation, U. S. N., Surgeon General Braisted, of the Navy and Surgeon General Ireland of the U. S. Army. The spirit pervading was in marked contrast to that of a few years ago when it was officially declared "that pharmacists were not essential to the Army." Not only were the medical departments of the Army and Navy represented by officers officially appointed by the respective surgeon generals who attended the meetings of the Association and in the House of Delegates presented the greetings of their commanding officers and expressed the desire of their departments for the assistance of pharmacists and the aid of representatives of the profession in organizing and improving the medical service insofar as it related to pharmacy. Moreover, Surgeon General Braisted of the Navy, who was likewise President of the American Medical Association, welcomed the opportunity for making a personal address to the Association.

The Committee on Nominations submitted the following names for President, 1921–1922: Henry Kraemer, Ann Arbor, Mich.; Charles W. Johnson, of Seattle, Wash.; Samuel L. Hilton, Washington, D. C. The election will be by means of a mail ballot.

The Council later elected as the Honorary-President for this year John F. Hancock, of Baltimore, Md. The Council was reorganized with Prof. Charles H. LaWall as chairman, and Dr. A. G. DuMez as secretary. It was decided to hold the next meeting in New Orleans in September, 1921. G. M. B.

THE PHARMACOPOEIAL CONVENTION.

On Tuesday morning, May 11, the delegates composing the United States Pharmacopoeial Convention for the Tenth Revision of the U. S. P., assembled in the ballroom of the New Willard Hotel in Washington. Shortly after 10 A.M., the appointed hour, the President, Dr. Harvey W. Wiley, called the convention to order and the business of the assemblage was proceeded with in a most expeditious manner. Beyond the appointment of delegates from the several departments of the government service represented, official Washington took no cognizance of an important gathering of professional and scientific experts for the explicit purpose of performing a most valuable service to the American people, the preparation of the standards for the most commonly dispensed medicines and which by the laws of Congress and many of the States, become the official standards of the country for drugs.

The report of the Committee on Credentials was read by Secretary M. G. Motter and showed no contests and required only a few corrections. It exhibited, however, a pathetic ambition on the part of some pharmacists to be admitted as delegates to this convention. Proxies and credentials from distant organizations, by some agency, found their way to persons who were recorded as delegates of such bodies with which prior to this perambulation they had not the slightest acquaintance and with which they were in no way whatever associated.

President Wiley called Fifth Vice-President Dr. W. A. Bastedo to the chair and read his presidential address which on motion was referred to a committee for consideration and report at the subsequent meeting. This was followed by the reports of the chairman of the Board of Trustees, Secretary and Treasurer of the convention, the latter showing a very comfortable balance available for the expenses of the convention and revision.

The report of Chairman LaWall for the Committee of Revision was read and this, and, likewise, the President's address contained touching references to the services of the late Chairman Remington and tributes to his work. On motion the president appointed Dr. S. Solis-Cohen, Charles H. LaWall and George M. Beringer as a committee to prepare a minute expressing the sentiments of this convention on the decease of Chairman Remington. In connection with his report Chairman LaWall read a paper prepared by E.

Fullerton Cook on "The Machinery of the Pharmacopoeial Revision," containing a number of suggestions for the expediting of the revision. The convention referred these to the incoming revision committee. (The report of Chairman LaWall appears in this number of the AMERICAN JOURNAL OF PHARMACY and the paper of Prof. E. Fullerton Cook, embodying the suggestions made to the convention, was published last month.)

The several amendments to the Constitution and By-Laws recommended by the Board of Trustees and which had been published in advance in the medical and pharmaceutical journals, were adopted as offered.

The Committee on Nominations was then selected, each delegation, as the organization was called by the Secretary, naming its representative thereon, and the meeting adjourned till Wednesday morning.

At the second session, held on Wednesday A.M., the Committee on President's Address made its report recommending that this be published and given a wide distribution. The committee to draft an appropriate minute concerning the decease of Chairman Remington submitted the following, which was adopted by a rising vote in silence.

"The Pharmacopoeial Convention assembled for the tenth decennial revision, deeply mourns that Professor Joseph P. Remington, Chairman of the Committee of Revision, who bore the brunt and burden of the labor of the revision was called from this life on January 1, 1918, before this body could express its appreciation for his painstaking efforts in the eighth and ninth revisions, by which the scientific standing of the volume was advanced and its leading position in the pharmacopoeias of the world established. No man can have a nobler monument than has Joseph P. Remington in this work.

"This Convention records its deep sense of the loss which the pharmacopoeia and the professions whose interests this work serves, sustained in his demise, and their obligation for the unselfish service, the many sacrifices, and the devotion to the pharmacopoeia continuously manifested throughout his many years of association with the work of the revision.

"This assemblage attests its esteem for his character, its love for his personality, its admiration for his learning and extends to his

family its sincere sympathy in their bereavement in which it likewise claims to share.

"As a lasting tribute to his memory and recognition of his inestimable service this minute is entered upon the records of this Convention and a copy thereof transmitted to his family."

The Nominating Committee made a report recommending the following for the respective officers:

For President, Dr. Reid Hunt.

For First Vice-President, Dr. Frederick B. Power.

For Second Vice-President, Dr. M. Howard Fussell.

For Third Vice-President, Dr. Walter A. Bastedo.

For Fourth Vice-President, Prof. L. E. Sayre.

For Fifth Vice-President, Dr. John F. Anderson.

For Secretary, Dr. L. F. Kebler.

For Assistant Secretary, Dr. W. W. Stockberger.

For Treasurer, Samuel L. Hilton.

For Trustees, James H. Beal, F. J. Wulling, Henry M. Whelpley, Dr. George H. Simmons, Dr. S. Solis-Cohen.

For members of the Committee of Revision to be composed of fifty, the names of seventeen physicians and thirty-three pharmacists and chemists were presented.

This report was adopted without division and in record-breaking time. The report on General Principles To Be followed in Revising the Pharmacopoeia submitted by the retiring committee was taken up and considered seriatim. A few minor changes in the wording were made without effecting any material alterations in the principles proposed and the twenty-six propositions each under a distinct title were adopted as a whole for the guidance of the incoming Committee on Revision.

Having discharged its work expeditiously the convention was adjourned *sine die* at the end of this second session.

The new Committee of Revision was called together on Thursday afternoon, May 12, by the President, Dr. Reid Hunt, for the purpose of effecting its organization. Dr. H. V. Arny nominated Prof. E. Fullerton Cook for chairman and he was unanimously elected. Prof. W. L. Scoville was elected Vice-Chairman and Prof. Charles H. LaWall was made Secretary. The committee immediately got down to work and held two meetings before adjournment at midnight and, by adopting the suggestions that had been made by Prof. Cook, accomplished in these conferences the division of its membership

into sub-committees, each of which selected its chairman who becomes thus a member of the Executive Committee, and settled by discussion a number of mooted questions which heretofore have required several months spent in correspondence for determination.

As we reflect upon the events of the Pharmacopoeial Convention and the machinations preceding, we are fully aware that these evidence the need for some reform in the methods adopted for the appointment of delegates to the convention and likewise for the selection of the officers and committee of revision. The recommendations of Chairman LaWall were unquestionably correct and efficiency alone should be the guide in determining the selection of those upon whom these important duties are to devolve. We cannot, however, record that they made a very deep impression upon many of those present, despite caucus agreements and conventional endorsement. The peripatetic efforts of certain over-ambitious and radical elements allied to pharmacy were fraught with grave danger to the future of the Pharmacopoeia. Fortunately, a measure of sound judgment prevailed so that with providential guidance a fairly representative committee of revision was selected, We can but regret that the wire-pulling of the educational elements resulted in the naming of so few practical pharmacists on the committee and yet this book is the constant and direct guide of this class of users who outnumber ten-fold that of any other class.

We would draw the veil of charity over the acts of jealousy that blinded from the observation of some of the delegates the efficient, self-sacrificing services of others in behalf of the pharmacopoeia and the elevation of the practice of pharmacy. G. M. B.

THE TAX ON TOILET ARTICLES AND PROPRIETARY MEDICINES.

To avoid apparent confusion in the minds of the public regarding the collection of the tax on toilet articles and proprietary medicines, the Bureau of Internal Revenue has issued a statement advising both dealers and purchasers that the tax of 1 cent for each 25 cents or fraction thereof of the amount paid is on the article itself and not on the total amount paid by the customer when two or more such articles are purchased, unless of the same kind and put up by the manufacturer in a single container for sale as an original package.

For example, if a tube of tooth paste costs 35 cents and a bottle of perfume 65 cents, the tax is 2 cents on the tooth paste and 3 cents on the perfume, a total of 5 cents and not 4 cents as computed on the total amount paid by the purchaser.

If toilet powder sells at 10 cents a box, the tax is one cent; if two boxes are bought the tax is two cents, although the total amount paid by the purchaser is 20 cents; and if three boxes are bought for 25 cents, the tax is 3 cents. If however, six boxes of toilet powder selling singly at 10 cents each are put up by the manufacturer in a container or sealed package for sale as a unit and are sold by the dealer as an original package for 50 cents, the tax is 2 cents, the package being the unit of sale.

The regulation providing that where two or more packages of cough drops are sold for 25 cents the tax shall be 1 cent is revoked, the tax being at the rate of 1 cent for each 25 cents or fraction thereof of the amount paid for a single package.

Instructions to advise dealers that the tax shall be collected in accordance with this ruling have been sent to collectors of internal revenue. The public is requested to coöperate in the proper collection of the tax.

This new ruling clarifies and to some extent, likewise, modifies prior announcements from the Bureau of Internal Revenue on this subject. We believe that it is entirely in harmony with the intent of the section of the Revenue Law of 1918 relating to this form of luxury tax. We are constrained, however, to direct the attention of the Bureau to the fact that the ruling of the Department relating to the tax to be collected upon multiple sales of ice cream, soda water, coca cola, etc., is inconsistent with this decision concerning the collection of the tax under the same law on multiple sales of toilet articles and proprietary medicines.

FRANK G. RYAN.

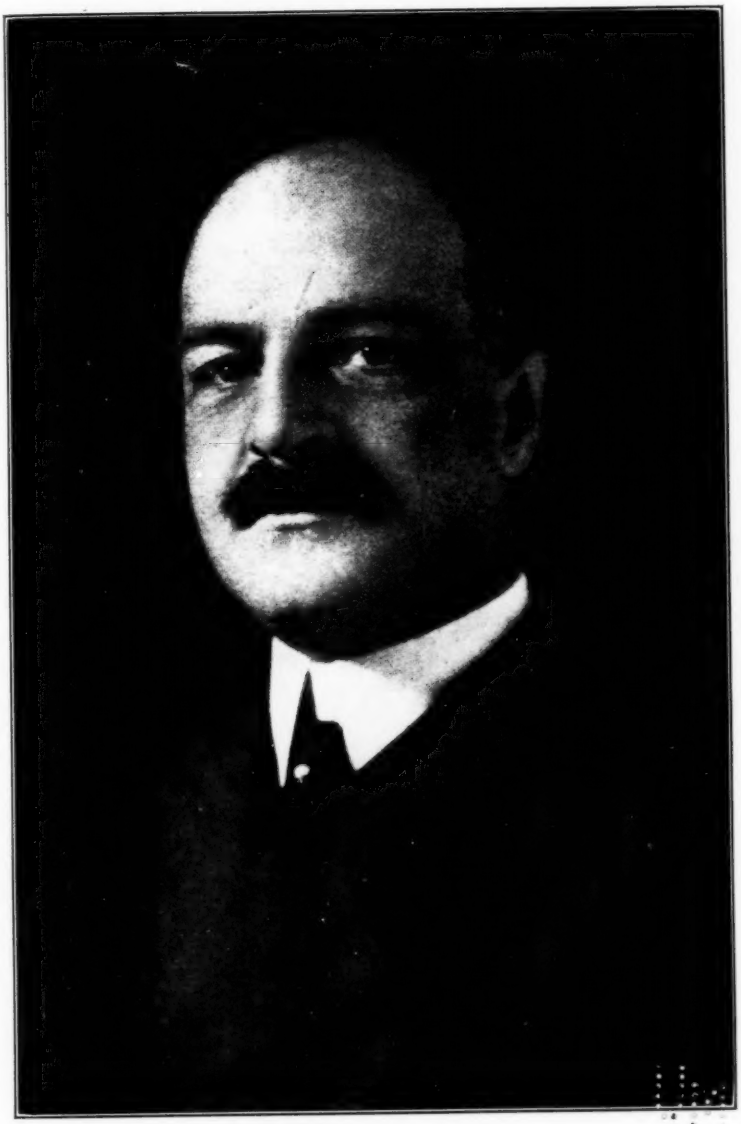
On the afternoon of April 20, Frank G. Ryan, president of Parke, Davis & Co., died rather suddenly of a malignant attack of pneumonia after an illness of but three days. Funeral services were held at Christ Church, in Detroit, on April 22. The active pall bearers were those who had been closely associated with him in the business management and a group of about fifty of the prominent representatives of the business and professional life of Detroit, all personal

friends, comprised the honorary pall bearers. The church was filled with a sorrowing throng composed of all walks in life, as Mr. Ryan had endeared himself to each whether a humble workman or girl employee in the office or laboratory, or a prominent professional or financial leader of the city and they all joined in paying a last tribute to one who was so universally esteemed.

Frank Gibbs Ryan was born in Marcellus Falls, New York, on December 26, 1861. He was educated in the public schools of Elmira. At the age of fifteen, he engaged in the drug business. During the years 1880–1882 he was employed as a drug clerk with Brown & Dawson, pharmacists, of Syracuse, the junior member of which firm was secretary of the New York State Board of Pharmacy for a number of years.

In 1882, Frank came to Philadelphia and matriculated at the Philadelphia College of Pharmacy. While attending instruction at the college, he clerked in several stores in Philadelphia and for several years after completing his college course he continued to keep in close touch with the actual duties of the retail pharmacist. Nevertheless, it was apparent even then, that he was gathering a broader experience as a teacher and as a student of commercial methods that would serve as a foundation for higher attainments. In 1884, he was graduated from the Philadelphia College of Pharmacy, the subject of his thesis being "Magnesii Carbonas."

In 1887, he was selected by Prof. Joseph P. Remington as his assistant in the department of Pharmacy. Both the professor and assistant Ryan were convinced that the instruction in pharmacy must be broadened out and much more attention be given to the commercial or business training of the embryo pharmacists, and that it was a proper part of the work of the College to see that the student was well-grounded in the essentials of business knowledge as well as in the professional and theoretical part of his calling so that the danger of an unsuccessful career would be minimized. It was largely through the efforts of Frank G. Ryan that in 1899 the College decided to establish an optional course in commercial training and this branch of instruction was placed in his charge. This was an entirely new departure in the curricula of pharmaceutical schools and attracted considerable attention and comment. Within a few years, the value of the instruction was demonstrated and was incorporated as part of the established curriculum of the Philadelphia College of Pharmacy and it has since been added to the instruction



Frank G. Ryan

given in many other schools of pharmacy. To Prof. Frank G. Ryan belongs the honor of having been the pioneer in this branch of pharmaceutical education and despite the early criticism he lived to see his ideas and the very course of instruction that he had outlined made the basis for the accepted course of business training in the leading schools of pharmacy.

At the meeting of the American Pharmaceutical Association held in Richmond, in 1900, Prof. Ryan was requested to address the members upon the subject of commercial training for students of colleges of pharmacy. He said that the lack of business knowledge on the part of the young men engaging in the drug business had been discussed in the pharmaceutical journals and was undoubtedly real. In his experience he found that but one man in twenty had received any training in business principles, although his students were generally high school graduates and possessed a good general education.

As clerks the young men had little opportunity to learn about the market conditions, the correct methods of buying, discounts, banking and insurance, etc., as this part of the business was almost universally reserved for the proprietor. The business colleges were prepared to teach a man how to become a banker, broker, shipper, real estate dealer but none of these taught business methods as applied to the buying and selling of drugs specifically, and it was essential that the pharmacist should receive such before engaging in busines on his own account and this should be imparted as part of his collegiate training and preferably by those who had some acquaintances with drugs and the drug-trade customs. He submitteed a synopsis of what he considered as the essentials that should be included in this instruction.

In 1889, when the scope of his duties in the Philadelphia College of Pharmacy were widened and the instruction in commercial training added, he was given the title of Instructor in Pharmacy and Assistant Director of the Pharmaceutical Laboratory. At the same time, he held the position of lecturer on pharmacy in the Woman's Medical College of Philadelphia. Always courteous, yet forceful, he evidenced even in those early days that he was a born leader of men and that he possessed unusual administrative and executive ability that enabled him to command and to gain the respect, confidence and support of students and the development of these characteristics at that time and under circumstances that were

trying to say the least, doubtless had an important bearing upon his subsequent success.

Affluence may have been a dream of this ambitious young pharmacist but at that period of his career it was an unknown factor. One of his classmates recently narrated that on the Commencement night when Ryan was awarded the pharmacy prize of $25.00 he remarked to his friend that this was a fortunate relief from being "flat broke." Intelligent and industrious application of his time was, however, a fundamental principle and for some years the summer months, when his college duties were for the time being suspended and which a less ambitious teacher would have enjoyed as a deserved vacation, found him engaged with Parke, Davis & Co. as a representative in attendance at conventions and in detailing physicians. He thus gained further experience and invaluable information and insight into human nature especially as reflected by those following the medical profession.

In 1900 he determined to relinquish teaching as his calling in life and cast his lot with manufacturing pharmacy and accepted the position of head pharmacist with Parke, Davis & Co. After thirteen years' connection with the instructional work of his *Alma Mater* he resigned in May of that year and the Trustees very reluctantly accepted his resignation and he carried with him the sincere best wishes of the officers, members and faculty and it has been with justifiable pride that they have since marked his great success. The severance of the many ties of comradeship and association with innumerable friends in the east must have caused him some "heart pangs" as it did those he was leaving.

We now know that this change meant at the time not only the taking up of a new and to some extent an unknown activity but that it likewise entailed a financial sacrifice as the initial salary was less than he was making by his several activities in Philadelphia.

With his characteristic self reliance and determination he applied himself to the enlarged field of opportunity. For three years he was one of the executive heads of a department energetically applying himself to learning every detail of the business and applying the knowledge which he had gained by his scientific and commercial training. When the opportunity came for filling vacancies in advanced positions of trust and responsibility his commanding position was so evident that he was invariably chosen. His advancement was phenomenal and to those unacquainted with the man and his ability,

both innate and acquired, would have been considered as romantic. In less than seven years, from the time that he permanently cast his lot with this corporation, he had been elected first, a Director, then, Secretary, next Vice-President and, finally, President. The latter position he filled for thirteen years when the Divine call terminated his labors. The thirteenth year would thus again appear as the completion of a determining cycle in his career.

As vice-president of Parke, Davis & Co., Mr. Ryan made a tour around the world combining pleasure with business. While in London, in 1907, he was entertained at a public dinner by the leading pharmacists and prominent men connected with the drug trade. Returning to America, he had landed but a day when President Buhl was suddenly stricken and Frank G. Ryan was immediately elected to fill the highest office in the Company. As president for the intervening period he accomplished great things for this house and the perfected organization, the enormous developments along scientific as well as commercial lines are very largely attributed by his associates to his foresight and ability and to the inspiration of his character and policies.

Frank G. Ryan joined the American Pharmaceutical Association in 1892. He was immediately elected secretary of the Section on Scientific Papers for the year and in 1899–1900 was chairman of this Section. He served as Chairman of the Committee on Weights and Measures and made an excellent report of the bills that had been introduced into Congress favoring the general adoption of the Metric System. He was not an office seeker and was contented to give his advice and the weight of his influence for the betterment of pharmacy without receiving personal recognition. Such offices and honors that were accepted came unsolicited and as a recognition of merit. He took an active interest in the organization and work of the American Drug Manufacturers' Association and for the first two years of its existence served as its President and the success and achievements of this comparatively young, yet exceedingly active, organization again demonstrates and reflects the effect and influence of the master mind in its formative period.

He filled an important position in the civic life of the City of Detroit. He was a member of five of the leading clubs of the city and served a term as president of the Detroit Club and of the Country Club. He declined to accept a number of public duties that were proffered to him. Nevertheless, he was an intense student of

the economic and political events of the time. His advice was freely sought on many subjects and his judgment and opinions were greatly esteemed. During the war, the governmental authorities frequently sought his advice on matters relating to the drug trade and he also served as chairman of a local draft board and gave unstintedly of his time and energies in this service.

A close friend of Mr. Ryan has written "he was preëminently a man who carved out his own career from the hard rock of opportunity. He rose from the ranks of drug clerks to a position of commanding influence in the pharmaceutical world." As we study the life work of those who have achieved notable successes, we find it interesting to isolate the personal characteristics that were the determining factors in their elevation. The personal traits that dominated the life and determined the preëminence of the subject of this sketch are not difficult to be discerned. Among these we may mention quickness of perception, promptness of decision, intense earnestness, unquestioned justness, sympathetic nature, unswerving integrity, close application, confidence in himself coupled with unusual administrative ability and adamantine adherence to principles. These were the qualifications that enabled him to inspire others with enthusiasm and the development of their best efforts, that won for him the respect and admiration of his business associates and competitors and endeared him to a host of friends.

His decease came with alarming suddenness and was a great shock to the community and the wide circle of friends. He left his office on Saturday, April 17, apparently in good health. That night he was taken with a severe chill and the next morning medical attendance was called in and the ailment was promptly diagnosed as a dangerous type of pneumonia from which he succumbed on Tuesday afternoon, less than three days after being taken ill. He is survived by a daughter, Mrs. Charles A. Dean, Jr., of Detroit, and a grandson, Charles A. Dean, 3rd, in whom Mr. Ryan was especially delighted. G. M. B.

REPORT OF THE CHAIRMAN OF THE COMMITTEE OF REVISION OF THE U. S. PHARMACOPOEIA.

By Charles H. LaWall, Ph.M.

In presenting the report which the by-laws of this organization direct shall be made to the Decennial Convention by the Chairman

of the Revision Committee, I must remind you that the real report, the one to which the Convention is entitled, written by the Chairman of the Committee who occupied that important post during the active period of revision, can never be presented. He who has borne the burden and heat of the day has been taken from us, and I, who was so close to him in his work for so many years, realize more than ever the loss that American pharmacy has sustained, and that no surrogate can stand before you and do justice to such a task or perform it in the manner in which it would have been handled by our late Chairman Remington.

In my hands the report will necessarily be limited to a chronological record of major events in the decade just ending. It will lack the fire and enthusiasm which would characterize a report by the one who was Chairman for a period of nearly seventeen years. This period (from 1901 to 1918) was the most important in the history of this ancient and honorable book of standards, for there is only one other national pharmacopoeia in existence which is older than the United States Pharmacopoeia and none which is more important; it is the period which saw the United States Pharmacopoeia emerge from a position of interest only to a limited number of practicing physicians and pharmcists who were bound by the ethics of their respective professions to heed its mandates, to the supreme position which it now occupies as the book of standards recognized as authoritative by both national and state governments in the laws pertaining to drugs.

At the decennial meeting of the Convention in May, 1910, a change was made in the former plan of having a Revision Committee of twenty-five, a larger committee of fifty members being selected. This included the following:

Joseph P. Remington,
William C. Alpers,
John F. Anderson,
H. V. Arny,
E. H. Bartley,
George M. Beringer,
Wilhelm Bodemann,
Charles Caspari, Jr.,
C. E. Caspari,
Virgil Coblentz,
N. S. Davis,
C. Lewis Diehl,
George C. Diekman,
A. R. L. Dohme,
E. G. Eberle,
C. W. Edmunds,
Joseph W. Englamd
J. M. Francis,
J. M. Good,
H. M. Gordin,
W. G. Gregory,
Walter S. Haines,

C. S. N. Hallberg,
R. A. Hatcher,
Lewis C. Hopp,
Reid Hunt,
L. F. Kebler,
J. A. Koch,
Henry Kraemer,
Edward Kremers,
Charles H. LaWall,
J. H. Long,
A. B. Lyons,
Philip Marvel,
C. F. Nixon,
O. T. Osborne,
Albert Plaut,
W. A. Puckner,
Otto Raubenheimer,
George D. Rosengarten,
H. H. Rusby,
S. P. Sadtler,
L. E. Sayre,
J. O. Schlotterbeck,
Torald Sollmann,
A. B. Stevens,
R. H. True,
C. E. Vanderkleed,
M. I. Wilbert,
H. C. Wood, Jr.,
H. W. Wiley.

This Committee immediately held an organization meeting before leaving Washington and elected the following officers:

Chairman, Joseph P. Remington.
1st Vice-Chairman, C. Lewis Diehl.
2nd Vice-Chairman, H. C. Wood, Jr.
Secretary, Charles H. LaWall.

The Committee then dispersed and under the guidance of its newly elected officers, three of whom lived in Philadelphia, commenced organizing by mail for the formation of the Executive Committeee of Revision of fifteen members, which had been authorized by the changed by-laws. Before this organization had progressed materially, Dr. Edward Kremers resigned from the Committee and his place was filled by the election of Dr. Solomon Solis-Cohen. The Executive Committee, as finally selected by the group of members interested in these respective lines of work, was as follows. The names of those who served upon these various sub-committees are also given as a matter of record:

No.	Title.	Chairman.	Members.
1	*Scope* (Admissions and Deletions)	S. Solis Cohen	Cohen, Dohme, Hallberg, Hunt, Marvel, Osborne, Plaut, Rusby, Sollmann, Wood

No.	Title.	Chairman.	Members.
2	*Therapeutics and Pharmacodynamics*	Torald Sollmann	Cohen, Davis, Edmunds, Haines, Hatcher, Osborne, Sollmann, Wood
3	*Biological Products, Diagnostical Tests*	J. F. Anderson	Anderson, Hatcher, Hunt, Long, Sollmann, Edmunds, Wood
4	*Botany and Pharmacognosy*	Henry Kraemer	Kebler, Kraemer, Plaut, Rusby, Sayre, Schlotterbeck, True
5	*General and Inorganic Chemistry*	C. H. La Wall	Arny, Bartley, C. E. Caspari, Coblentz, Kebler, LaWall, Long, Puckner, Rosengarten, Sadtler
6	*Organic Chemistry*	G. D. Rosengarten	C. E. Caspari, Coblentz, Dohme, Kebler, Koch, LaWall, Lyons, Puckner, Rosengarten, Sadtler, Vanderkleed
7	*Proximate Assays*	A. B. Stevens	C. E. Caspari, Dohme, Francis, Gordin, Kebler, Kock, LaWall, Lyons, Puckner, Stevens, Vanderkleed
8	*Volatile Oils*	H. W. Wiley	Beringer, C. E. Caspari, Dohme, Francis, Koch, LaWall, Sadtler, Kebler, Wiley
9	*Fluid and Solid Extracts, Tinctures*	G. M. Beringer	Beringer, Chas. Caspari, Jr., Diehl, Diekman, Francis, Eberle, Good, Raubenheimer
10	*Aromatic Waters, Spirits, Liquors*	C. Lewis Diehl	Arny, Beringer, Bodemann, Diehl, Eberle, England, Good, Gregory, Raubenheimer

No.	Title.	Chairman.	Members.
11	*Syrups and Elixirs*	W. C. Alpers	Alpers, Beringer, Diehl, Diekman, Eberle, England, Francis, Nixon
12	*Cerates and Ointments*	Otto Raubenheimer	Alpers, Diekman, Eberle, England, Good, Hopp, Raubenheimer
13	*Miscellaneous Galenicals*	C. S. N. Hallberg	Arny, Bodemann, Hallberg, Hopp, Nixon, Raubenheimer, Sayre, Wilbert
14	*Tables, Weights, Measures*	A. B. Lyons	Kebler, La Wall, Lyons, Stevens, Wilbert
15	*Nomenclature*	Chas. Caspari, Jr.	Caspari, Jr., Cohen, Good, Hallberg, Osborne, Plaut, Rusby, Wilbert

On October 22, 1910, death removed Prof. C. S. N. Hallberg, Chairman of the Sub-committee No. 13. His place upon the Executive Committee was immediately filled by the selection of Mr. Wilhelm Bodemann, and the vacancy in the General Committee of Revision was filled by the election of Prof. A. H. Clark, on January 7, 1911.

No other deaths occurred in the Executive Committee during the active period of the work of revision, which lasted until the summer of 1916. The work of the General Committee and of the various sub-committees was mainly carried on by correspondence. One fairly representative personal conference participated in by a majority of the members of the General Committee of Revision was held during the meeting of the American Pharmaceutical Association in Boston, Massachusetts, on August 15, 1911. Several official and numerous unofficial meetings were held of important sub-committees during the active period of work, but in the main the entire operation of revision was conducted by the method in use during the preceding decade—that of mimeographed circulars and letters and a definite procedure of debating questions and collecting and recording votes.

We can form some idea of the magnitude of this stupendous undertaking when we glance at the statistics of the work as expressed in pages of material issued during the decade, most of which was sent out prior to 1916.

Circulars to General Committee	2000 pages (9 × 16 inches)
Letters to Executive Committee	3417 pages ($8^1/_2$ × 11 inches)
Bulletins to members of Sun-committees from the chairmen (members of the Executive Committee)	5557 pages ($8^1/_2$ × 11 inches)

These latter figures are underestimated, for no record is obtainable for three of the sub-committees, and no account whatever is taken of the voluminous personal correspondence which was carried on by or between members throughout the entire progress of the work.

The first task to be accomplished was the selection of the substances for inclusion in the revised work. This duty was assigned to the Sub-committee on Scope, which made five preliminary reports from December 8th, 1910, to March 11th, 1911. Some changes were subsequently made as new conditions arose necessitating modification or alteration of previous action. When the book finally appeared, however, the sum total of changes in monographs amounted to sixty-seven additions and two hundred and forty-three deletions. There are seven hundred and eighty-two titles and monographs included in the official substances in Part I. In Part II there are three hundred and thirty-nine test solutions and reagents described and a number of special descriptive articles covering general processes or subjects, together with numerous tables of value.

In the progress of the work, the following procedure was followed in the main. A tentative monograph was submitted to the sub-committee to which that particular substance had been assigned, by its chairman, and comments and suggestions invited. The chairman of the sub-committee would then draft a new monograph embodying the changes suggested and again submit it to the members of the sub-committee. This procedure was repeated until a monograph was found to satisfy the members of the sub-committee. During this stage of the work, the chairmen of the sub-committees who were members of the Executive Committee, reported monthly to the Chairman of the General Committee of Revision upon the status of the work in their respective sub-committees. When a group of monographs satisfactory to a sub-committee had been collected by its chairman, these were submitted to the Executive Committee through the General Chairman and comments and suggestions invited. Sometimes the monographs with their criticisms would be

resubmitted to the committee from whence they had come, but more often the corrections were of a minor character and the monographs would be finally revised by the Executive Committee. Having passed this group of censors, the revised or approved monographs would next be sent out to the General Committee of Revision, where they were subjected to the scrutiny and criticism of many who had not before seen them. Again the procedure of correcting minor errors or recommitting was followed and the monograph, having reached this advanced stage and having been finally approved, was put aside by the Chairman of the General Committee of Revision, until the entire manuscript was ready for the printer.

During the Executive Committee and General Committee stages of the evolution of these texts, the mandate of the Convention regarding publicity was heeded, by submitting to the numerous pharmaceutical, medical and chemical journals lists of all proposed changes in abstract. These proposed changes were also widely circulated among the manufacturing firms of the country, thus calling in as an auxiliary a great body of interested and experienced scientific workers who performed services of great value without adding to the cost of the work.

One of the burning questions occupying the attention of the members of the Revision Committee themselves, and interfering to a certain extent with the efficiency of their work through pressure from the outside, was the query: How long is the revision going to take? Such a factor should never enter into a problem of this kind. For several decades each succeeding revision has taken a little longer than the last, for the reasons which are clearly apparent to a rational unprejudiced observer. Under the present methods of procedure, in which practically all of the work is carried on by mail in the interests of economy, it may always be expected that a revision will require from three to six years. When the Convention wishes a more expeditious handling of the work, it can easily obtain results by authorizing a large enough expenditure of funds to enable personal conferences to take the place of long drawn out arguments and discussions by correspondence and in the interest of scientific efficiency by authorizing the establishment of a central laboratory where all scientific problems can be worked out, at least in a preliminary way, without having to wait for the convenience of those who are doing the work largely as a labor of love and with

a generous sacrifice of time and energy usually transferred from more remunerative work.

The most unthinking criticism in connection with pharmacopoeial revision is usually directed at this matter of time taken to revise the work. It generally originates in quarters where unfamiliarity with the problem is the principal asset of the critic. So far as any specific reasons may be given for the long period consumed in the revision of the U. S. P. IX, it may be stated primarily that this was the first complete revision of the work after the passage of the Food and Drugs Act, giving it authoritative legal standing, and, in consequence of this fact, every standard, every phrase, had for the first time in the history of a revision to be so carefuly framed as to afford no loop hole for evasion by, or escape of an adulterator on the ground of indefiniteness. American lawyers must be extraordinarily keen or most be more in the habit of interposing technical objections, or raising technical points of interpretation than are the lawyers of other countries, for forms and procedures which appear to be perfectly practical in the pharmacopoeias of many other nations were objected to, criticised and revised until our present United States Pharmacopoeia seems to some to be overbalanced in the direction of academic preciseness and to have lost something of the spontaneity and practicality of some of the earlier editions. This may all be necessary and unavoidable, but the present Convention and the incoming Committee of Revision should not lose sight of the fact after all that the United States Pharmacopoeia should be a practical guide-book first and a law-book next. The European war, which began just as the revision was nearing completion, brought new problems to be solved and new difficulties to confront the revisers, and this influence was also of a nature to retard the progress of the work.

Some questions consumed much time in discussing and were finally decided adversely, so far as admission was concerned. Among these were the following:

The inclusion of a table of antidotes.

The introduction of a standard medicine dropper.

The publication of ethical rules for guidance of physicians and pharmacists in their relation to each other and to the public.

The admission of whisky and brandy.

The rules of procedure entitle every member to a reasonable

length of time to formulate his arguments in a discussion and the question is then decided by a majority of the votes of the entire Committee either for or against the proposition. In this connection it may be said that the present procedure leaves much to be desired as it works out in practice in many instances, especially when questions come to a vote in the General Committee. It is not uncommon in such a case, when the vote is tabulated, to find that those who may rightfully claim to be experts on a particular subject and who have given time, thought and study to a subject in addition to experience which they possess, are outvoted by members who are not particularly familiar with the question except in so far as they have been informed by the discussions which they have read. This defect has persisted for several revisions, and attention was called to it by late Chairman Remington in his report to the last Decennial Convention. I feel it necessary at this point to quote his remarks upon this subject verbatim:

"The Pharmacopoeia is a composite work and one of the defects in the last revision was the fact that the whole committee were expected to vote upon questions of detail, the vote of each member having the same value. This should be changed, and, upon special subjects, the sub-committee having these in charge should have much greater weight in the final decision than heretofore. This can be done by referring, for example, assay subjects, which have been before the General Committee, back to the sub-committee, if necessary, and each member of that committee might have two votes on the final decision, the same rule to apply to all sub-committees.

"Another way of meeting this difficulty would be to allow any member of the General Committee, not especially posted upon matters of detail, to transfer his right to vote to a member of the sub-committee in whom he has confidence. This vital defect in pharmacopoeial revision might then be overcome."

I believe it would be well for the Convention this time to give some very careful thought to this subject and to issue binding instructions to the incoming Committee covering this very important phase of the work. For example, it certainly is exclusively the province of the medical members of the Revision Committee to decide what substances should be officially included for remedial purposes, and this list, after having been decided upon by the physicians, should not be subject to review or alteration by pharmacists and chemists. On the other hand, when the list of official remedial

agents has once been clearly outlined, it should be the province and privilege of the pharmacists and chemists to decide upon such additions and inclusions of materials used as ingredients as will make it possible and practicable to prepare the medicine of proper uniformity, quality and potency. These are the basic and fundamental prerogatives, and a workable plan should be devised to maintain their integrity.

The work of making a pharmacopoeia is big enough and important enough to enlist the constructive effort of every worker, be he physician, pharmacist or chemist, and by having a clear understanding of the respective responsibilities and duties and an intelligent allotment of the details of the work much lost motion may be saved and a unanimity of effort developed which will not only expedite the progress of the work, but will develop a common interest of thought and action between physicians, pharmacists and chemists who are co-laborers in the important field of work which has for its ultimate object the alleviation of human suffering and the prevention and cure of disease.

In the early part of 1916, the preliminary work of revision was practically finished. The manuscript was placed in the hands of the printer and the great task of editing, proof reading and finally correcting the copy, proceeded rapidly to completion. Galley proofs were sent to the members of the Executive Committee and page proofs to all members of the General Committee of Revision, the majority of whom co-operated splendidly in this important labor. Comments and corrections were systematically compiled by the General Chairman and carefully considered in preparing the final page proof. Foundry proofs were sent only to the General Chairman. The work was at last completed in the summer of 1916 and the time of making the U. S. P. IX official was fixed for September 1st of that year.

It has been stated and it is undoubtedly true that insufficient time was given from the time when the books were actually available in the furthermost parts of the great geographic territory to which the United States Pharmacopoeia applies and the date when the work became official. Six months is not too long a time for the interests involved to make the necessary changes in labels and stocks and to minimize the confusion always attendant upon such a period of change. The Convention should adopt a definite resolution upon this point.

No work of such magnitude has ever yet been free from error or just criticism. It is gratifying to report, therefore, that when an official list of corrections and necessary changes was issued in 1919, three years after the work had become official, only 101 alterations were reported, a small number indeed, and most of them were of minor importance.

On January 1, 1918, Chairman Remington died at his home in Philadelphia. He was immediately succeeded by the 2nd Vice-Chairman, Dr. Horatio C. Wood, Jr., the 1st Vice-Chairman having died some time previous.

Following the procedure of the previous decade when a similar situation occurred, Dr. Wood called for an election for Chairman of the General Committee of Revision, and upon April 6, 1918, I, Charles H. LaWall, was elected to fill the vacancy for the remainder of the ten-year period of office.

Death had fortunately spared the Committee during the early and constructive period of the work, only one death having occurred prior to 1915, that of Prof. C. S. N. Hallberg, previously referred to. The other deaths which occurred during the decade were as follows:

Mr. Albert Plaut,	June 17, 1915.
Mr. M. I. Wilbert,	November 25, 1916.
Dr. W. C. Alpers,	February 20, 1917.
Prof. C. Lewis Diehl,	March 25, 1917.
Dr. J. O. Schlotterbeck,	June 1, 1917.
Prof. Charles Caspari, Jr.,	October 13, 1917.
Dr. John H. Long,	June 14, 1918.
Prof. James M. Good,	May 15, 1919.

From this it will be seen that out of the fifty-one members of the General Committee of revision ten, or 20 per cent., died during the decennial period for which they had been elected.

Early in the summer of 1918 an election was called for to fill the vacancies occasioned by death up to that time. Nominations were made of candidates and, after balloting, the following eight members were elected:

Prof. E. Fullerton Cook,	Mr. J. K. Lilly,
Prof. W. B. Day,	Dr. L. G. Rowntree,
Mr. S. L. Hilton,	Mr. L. A. Seltzer,
Mr. H. P. Hynson,	Prof. W. J. Teeters.

On September 27, 1918, Prof. E. F. Cook was elected Secretary of the General Committee of Revision to fill the place made vacant by the election of myself to the general chairmanship. Vacancies having occurred in the Executive Committee by death and other causes, the following chairmen were elected during 1918 of the sub-committees named:

No. 5 Dr. H. V. Arny.
10 Prof. E. G. Eberle.
11 Mr. J. W. England.
15 Dr. H. H. Rusby.

At the present time, therefore, the entire personnel of the sub-committees, with assignments of newly elected members is as follows:

No.	Title.	Chairman.	Members.
1	*Scope* (Admissions and Deletions)	S. Solis-Cohen	Cohen, Dohme, Hunt, Marvel, Osborne, Rusby, Sollmann, Wood, Hynson
2	*Therapeutics and Pharmacodynamics*	Torald Sollmann	Cohen, Davis, Edmunds, Haines, Hatcher, Osborne, Sollmann, Wood
3	*Biological Products, Diagnostical Tests*	J. F. Anderson	Anderson, Hatcher, Hunt, Edmunds, Sollmann, Wood
4	*Botany and Pharmacognosy*	Henry Kraemer	Kebler, Kraemer, Rusby, Sayre, True, Day, Lilly, Tecters
5	*General and Inorganic Chemistry*	H. V. Arny	Arny, Bartley, C. E. Caspari, Coblentz, Kebler, Puckner, Rosengarten, Sadtler, Clark
6	*Organic Chemistry*	G. D. Rosengarten	C. E. Caspari, Coblentz, Dohme, Kebler, Koch, Lyons, Puckner, Rosengarten, Sadtler, Clark, Vanderkleed
7	*Proximate Assays*	A. B. Stevens	C. E. Caspari, Dohme, Francis, Gordin, Kebler, Koch, Lyons, Puckner, Stevens, Vanderkleed, Hilton

No.	Title.	Chairman.	Members.
8	*Volatile Oils*	H. W. Wiley	Beringer, C. E. Caspari, Dohme, Francis, Koch, Sadtler, Kebler, Wiley
9	*Fluid and Solid Extracts, Tinctures*	G. M. Beringer	Beringer, Diekman, Francis, Eberle, Raubenheimer, Cook, Hilton
10	*Aromatic Waters, Spirits, Liquors*	E. G. Eberle	Arny, Beringer, Bodemann, Eberle, England, Gregory, Raubenheimer, Cook, Hilton, Hynson, Seltzer
11	*Syrups and Elixirs*	J. W. England	Beringer, Diekman, Eberle, England, Francis, Nixon, Cook, Hilton, Hynson, Seltzer
12	*Cerates and Ointments*	Otto Raubenheimer	Diekman, Eberle, England, Hopp, Raubenheimer, Cook, Hilton, Hynson, Seltzer
13	*Miscellaneous Galenicals*	Wilhelm Bodemann	Arny, Bodemann, Clark, Hopp, Nixon, Raubenheimer, Sayre, Cook Hilton, Hynson, Seltzer, Teeters
14	*Tables, Weights, Measures*	A. B. Lyons	Kebler, Lyons, Stevens
15	*Nomenclature*	H. H. Rusby	Cohen, Osborne, Rusby

In 1918 the Board of Trustees authorized the publication of a supplement to include some new remedies and some of the changes made advisable by the continuance of the war and the shortage of supplies. The sudden end of the war eliminated the immediate necessity for a supplement, and it being near the end of the revision period, the Board of Trustees withdrew the authorization which they had previously made for its publication.

The Spanish Translation which had been authorized by the Convention was placed in the hands of the printers during 1918 and in December, 1919, was placed on sale through the same agency which had handled the previous Spanish Edition, they being the lowest bidders for the privilege. The publication of the Spanish Edition can never be considered financially advantageous to the Convention, but it should be continued as a patriotic duty and in recognition of the increasing use of the book in the Spanish speaking American countries.

The last work of the Committee has been to draft a set of General Principles for submission to the Convention, embodying the experience and constructive thought of the present Committee. These will be submitted for your consideration and discussion at the proper time. There have also been collected a large number of suggestions and criticisms for the guidance of the incoming committee in planning and carrying on its work. All of those which came in before January 31st, 1920, have been collected, classified and published in the *Journal of the American Pharmacuetical Association* and reprints are now available for distribution and will be turned over to the incoming committee.

Much material of the same kind which has accumulated since will be made a part of the records of the present committee. These records will also include the final reports and recommendations of a few of the sub-committees which are still functioning, and all of this material will be available for immediate use by the newly elected Committee of Revision.

The plan of subdividing the work into fifteen different headings has worked out well in practice. It would be in the interest of efficiency if in naming the men who are to serve upon the Revision Committee in the next decade that some classification of their qualifications be insisted upon in making the nominations in order that a well-balanced committee might be selected embodying experts in all lines of work. This could be accomplished by instructing the nominating committee to require each nominee to be classified by placing after his name the number of the present U. S. P. sub-committee in which his services would be particularly valuable. By following such a plan, we would be assured of a Committee of Revision to undertake the important work of the next decade, which would be well balanced in character and free from criticism.

I, therefore, recommend that the Convention instruct the nominating committee to proceed upon such lines in carrying out its work.

If the Convention wishes to assure the issuing of the next revision of the Pharmacopoeia within a reasonable length of time, say two years from now, this result can be undoubtedly achieved by issuing instructions to the incoming Board of Trustees and Revision Committee that frequent personal conferences of sub-committee members be authorized and periodic meetings of the Executive Committee of Revision. This is tendered as a suggestion rather than as a recommendation.

To this assembled Convention is submitted the foregoing report of the work of a Committee which, as far as its present personnel is concerned, ceases to exist officially within the next few hours. There is no greater honor or responsibility than can come to a physician, pharmacist or chemist than of being included in this galaxy of workers. What the present Committee has accomplished has been done under the stimulus of the high standard set by the previous revision, of which so many commendable things were said by foreign critics, who may be expected to have a broader perspective and a fairer viewpoint in some respects than those who are close at hand. Many of our members have labored in season and out to make the book worthy of American medicine and pharmacy. Whether we have succeeded or not, it is the best that was possible to be done under existing circumstances. The time, thought, energy, we may even say the life-blood of men who did the best they knew how, are woven into its structure.

To this Convention is entrusted the responsibility of selecting the next Revision Committee. Whatever be the conditions under which the next revision will be undertaken, you should not lose sight of the fact that capability and willingness to serve are the fundamental considerations that should guide you in your choice. There should be an entire absence of rivalry or jealousy except that which animates men who are each trying to see who can best work and best agree. The next United States Pharmacopoeia should be a work which will enlist the support of that which is best in the professions sharing the responsibility of its revision.

The initials are symbolic of three guiding principles which should be kept ever in mind, for without them no true success can be achieved. They are Unity, Service and Patience, and in closing let me again say that revisions may come and go, but it will be long before you will find a chairman who will exemplify these attributes as did Chairman Joseph P. Remington, whose memory might suitably be honored at this time by selecting men of his unselfish, loyal and steadfast type to revise the next United States Pharmacopoeia.

CALCIUM CARBONATE IN PHARMACY AND MEDICINE.

By Adley B. Nichols, Phar.D.,

PHILADELPHIA, PA.

Chalk, chemically mainly calcium carbonate, is the name given to any soft, pulverulent, pure white limestone. The word chalk is an old one, having its origin in the Saxon "cealc," and the hard form "kalk" is still in use in some districts. The German word "Kalk" comprehends all forms of limestone, and therefore a special term "Kreide" is employed, French "Craie."

Chalk is used extensively in a great many ways. It enters into the manufacture of cement and other commercial articles; it finds a place in various chemical processes, and in the making of paint, crayons and tooth powders. Whiting, or Spanish white, which is used to polish glass and metal, is purified chalk, prepared by elutriation. Chalk is employed to some extent medicinally, sometimes as a mild astringent, but more usually for its mechanical action as in grey powder, or in chalk mixture where it produces its effect by coating the walls of the stomach and intestines.

At the present time, most of the calcium carbonate used in medicine is obtained from natural deposits, of which there are a few in the United States, while the largest deposits, in the form of whole mountain ranges, with huge white chalky cliffs, are found in southern England and extending directly across the channel and through northern France. This natural chalk is called creta alba.

Calcium carbonate is official in two different forms in the present U. S. Pharmacopœia, as Calcii Carbonas Praecipitatus, so-called precipitated chalk, and as Creta Praeparata, so-called prepared chalk. The precipitated article is prepared by interaction between calcium chloride and sodium carbonate, calcium carbonate being precipitated. This differs physically from prepared chalk, which is native chalk prepared by elutriation, in that the particles are more gritty and it is not usually so near white in color, and also lacks the adhesive qualities which are so pronounced in prepared chalk. The precipitated chalk is better adapted for use in tooth powders, and similar preparations, on account of its gritty character, while the prepared chalk is used extensively in medicine as an antacid, besides being particularly well adapted for the treatment of diarrhoea, by reason of its adhesive properties.

The method for preparing precipitated chalk was first made official in the fourth edition, 1850, of the U. S. Pharmacopœia, while the prepared chalk was official in the first and second editions, as Calcis Carbonas Praeparatus, and the title changed to the present form of Creta Praeparata in the third edition, 1840. Likewise Mistura Calcis Carbonatis was official in the first two editions of the Pharmacopœia, and was changed to Mistura Creta in the third edition. The U. S. Dispensatory, first edition, 1833, also added, that besides being official in its soft state, as chalk, carbonate of lime is also ordered as it exists in marble (marmor), oyster shells, crabs eyes and crabs stones. The preparation called Testa Preparata, was recognized in the U. S. Pharmacopoeia from the first to the sixth editions inclusive. Testa is the term applied to the shell of the oyster, Ostrea Edulis, L., consisting of about eighty-seven to ninety-eight per cent. of calcium carbonate and found mostly in the internal pearly layer of the shell. Conchae was another term used to designate oyster shells, prepared by boiling with water and freed from all foreign matter, and Conchae Preparatae, the purified oyster shell, purified by elutriation and trochiscation.

At the present time there is a preparation of this type official in the Homoeopathic Pharmacopœia, by the name of Calcarea Carbonica, or Calcium Carbonate of Hahnemann, and is sometimes known as Calcarea Ostrearum, or Testa Ostryae. This is impure carbonate of lime as it exists in the oyster shell, and is directed to be prepared as follows: Take well selected, tolerably thick oyster shells, clean and break in a wedgewood or porcelain mortar. Select the pure white portions which exist between the interior and exterior surfaces, wash carefully in distilled water, dry over a water bath and reduce to a fine powder.

According to theories accepted at that time, testa was supposed to be more acceptable to the stomach than ordinary chalk. Lewis' Materia Medica, 1784, states that lime water dissolves the human calculus, particularly lime water prepared from calcined oyster shells, which proves a more active menstruum for this concrete (and possibly other substances) than that prepared from stone limes, the dissolving power of oyster shell lime water seeming to be more than double that of stone lime water.

There were a great many other drugs, besides oyster shells, which were used at various times as sources of calcium carbonate, and

possibly the next in general use were crabs eyes, or crabs stones, which were known by such terms as Lapides Cancrorum, Lapilli Cancrorum or Oculi Cancrorum, being concretions found in the stomach and consisting of about sixty-four per cent. of calcium carbonate, with a little animal matter. King's Dispensatory gives the following tests to distinguish the true from the spurious crab's eyes. They effervesce in hydrochloric acid in which they do not completely dissolve, thus being distinguished from spurious crab's eyes, which are wholly dissolved by hydrochloric acid. In the presence of boiling water, crab's eyes assume a pinkish red hue. Another closely related product was crab's claws, Chelae Cancrorum, which were prepared in a finely powdered state and consisted of about sixty per cent. of calcium carbonate.

Corallen or Coral, was still another of the forms of calcium carbonate used, and this too is still used in the Homoeopathic Pharmacopœia, under the name Corallium Rubrum, or red coral, the skeleton of the coral zoöphyte. The chemical constituents are calcium carbonate with a trace of magnesium carbonate and a little more than four per cent. of ferric oxide as coloring matter. There is a small amount of animal matter present. This is also called carail rouge.

Os sepia, or cuttlefish bone, the mantle of Sepia Officinalis L., is still another of the many forms of calcium carbonate relied upon. This consists of from eighty to eighty-five per cent. of calcium carbonate. Its use lies mainly in furnishing calcium carbonate to cage birds.

An interesting note on lime water dating back to the nineteenth century, states that lime water was originally prepared from "calcaria usta," as lime was called, and the preparation was known as "Aqua Calcaria Usta."

Other waters of this nature were mentioned under such names as aqua calcarea bicarbonica, aerated or carbonated lime water, and aqua magnesia carbonica. Aqua or liquor magnesia carbonica was made either by freshly precipitating magnesium carbonate from magnesium sulphate and sodium carbonate and saturating with carbon dioxide, or using magnesia alba directly and then saturating.

THE STABILITY OF DIGITALIS LEAF EXTRACTS. THE INFUSION (SECOND PAPER).

BY CLAYRE A. POMEROY AND FREDERICK W. HEYL,

KALAMAZOO, MICHIGAN.

In a previous paper[1] the deterioration of alcoholic digitalis extracts was discussed and a rather rapid rate of deterioration was established. A study of the stability of aqueous solutions is important because of the wide use of the infusion in practical therapeutics. It is also interesting to observe the behavior of such solutions because of the fact that most of the investigators to whom we owe our present information concerning the chemistry of the leaf have used processes involving the use of aqueous solutions.

Infusion of digitalis is the oldest of the galenical preparations of this drug, and was in fact employed by Withering, to whom we owe the introduction of the drug to modern practice. He began to use it as a diuretic and the dose used is stated as 1–3 grains twice a day or the equivalent amount of infusion (1–3 drachms of 1.5 per cent. infusion).

Aside from the clinical value of the infusion, which it is not our purpose to discuss, our brief investigation points out conclusively that in the modern evolution of pharmacy we have lost some of the unique powers of observation which the pharmacists of the 18th and early part of the 19th century had developed to such a degree that their personal interest could be relied upon in the matter of collecting and selecting drugs. The olden-time pharmacist knew his digitalis and the activity of the infusion. The modern pharmacist must necessarily rely upon the assistance of the pharmacologist in this matter. During the interval between the old period and the time when complete scientific standardization shall be used, such problems as that presented by infusion of digitalis must prove a stumbling block to clinical progress.

We have recently been required to answer a large number of inquiries on the part of clinicians concerning the strength and stability of the infusion. Not only do we find a wide variation in the strength of various samples of leaves, but the instability of the infusion itself lends further variability to this preparation. The pharmacist relies upon indirect sources of supply for his crude drug, and

[1] *Am. J. Pharm.*, 91: 425, 1919.

then manufactures the unassayed infusion, usually in liter quantities as prescribed in the pharmacopœia. He does well if he produces a preparation equal in value to those made in the earlier times when the clinician's report to the pharmacist constituted something of a pharmacological opinion on the drug used.

While it is true that the pharmacopœia wisely directs that the infusion must be freshly prepared from the leaves, the fact is that the quantities outlined in the text, which produce one liter of the preparation, leads most pharmacists in practice to overstock this galenical.

Our results upon the stability of the infusion proved of great interest. When this subject is studied using the one-hour frog method, we find that the infusion stored at low temperatures will lose about 20 per cent. of its activity in 6–7 days; while in warmer weather, the velocity of the change is greater and the same stage of decomposition results in 3–5 days. It would appear reasonable therefore to limit the production of the infusion to small quantities. An excellent system of digitalis administration which is widely used in this country consists in giving 3–8 grains daily for several days until the desired therapeutic effect is obtained, with subsequent diminution to 1–3 grains per day. If we adopt this, it is evident that since one teaspoonful (4 Cc.) of the infusion is equivalent to 1 grain (0.06 Gm.) of the drug that a four ounce (120 Cc.) quantity constitutes a very desirable quantity of the infusion for prescription work. This amount of infusion contains about 31 grains (2.00 Gm.) of the drug and this supplies a quantity usually considered necessary during a 5 to 7-day course.

Our conclusions are based upon the deterioration rate as determined by the one-hour frog method. Hatcher and Eggleston,[1] using the cat method have reported results that lead to the conclusion that "the infusion is fairly stable when prepared and kept with ordinary care, no important change then occurring within a week." They report stability of an order never observed by ourselves. Thus for example, they found an official infusion that had been kept stoppered at 70° F. for 19 days to test the same as at the beginning. In another case, a specimen made by the official process and kept in the ice box for four weeks retained its activity unchanged. An aqueous infusion after 28 days in the ice box retained about 80 per cent. of its activity. It is necessary to refer the reader to the original

[1] *J. A. M. A.*, 65: 1902, 1915.

paper, but their findings are certainly entirely different from those obtained by the one-hour frog method.

Concerning the comparative activity of infusions and tinctures we obtain results similar to the previous findings of Focke.[1] This investigator reports that infusions filtered through linen or cotton give slightly higher results than when filter paper is used. The activity corresponds to about 85 per cent. of that obtained in tinctures of equal concentration. We believe that this figure will represent the average finding when a considerable number of samples are investigated in this connection. Some of our fresher samples yielded almost as much of their activity to water as to the tincture, while in the case of a very old drug only 70 per cent. of the total activity was found in the infusion. For practical purposes Focke's figure is acceptable and the dosage of the infusion should perhaps be slightly higher (10/9) than for the powdered drug. In other words, considering 0.06 Gm. of digitalis (4.0 Cc. infusion) as a standard dose of the powdered leaf, the activity of the infusion will require about 4.4 Cc. to yield the same result.

If one bears in mind the instability of aqueous digitalis solutions, while reviewing some of the chemical studies of the leaf, it becomes easy to comprehend the difficulty of the investigators in arriving at concordant results. Practically all the workers, including Schmiedeberg, Kiliani and Kraft, have worked in aqueous media, and we daresay that, dependent upon conditions, various products have been isolated which represent various degrees of alteration.

In connection with the chemical investigation of the leaf it appears to be important to bear in mind the fact that the total activity of the crude galenical extracts may greatly exceed the sum of the isolated fractions, even if no chemical changes such as hydrolysis were involved. This subject is discussed by Tschirch and Wolter,[2] who reported the interesting observation that the activity of the acetone extract of a salt saturated aqueous solution of digitalis represented but a part of the total activity, whereas the extracted fluid proved to be inactive. Acetone extracts the active principles from the *leaf* completely. They state that this difference in results is to be understood either by reason of chemical change in the active principles or because in the activity of crude extracts other substances which, while they are not in themselves active,

[1] *Arch. Pharm.*, 249: 323, 1911.

[2] *Schweiz. Apoth. Zeit.*, 56: 469. THIS JOURNAL, 91: 471.

have nevertheless an influence upon the active material. This influence is either in relation to solubility or absorption which is influenced favorably. Tschirch argues that the activity of digitalis is an ensemble effect and is not due to simply the sum of individual glucosides; instead the activity of each individual is always influenced and increased by the simultaneous presence of others. With the successful isolation of individual glucosides the ensemble activity does not appear upon physiological testing.

These investigators performed a simple experiment of interest in this connection and bring out a point which is overlooked in our first paper. Putting the drug through Keller's assay, they isolated 18.5 per cent. of the activity in the chloroform shake out. The exhausted aqueous layer retained only 26 per cent. of the activity, so that by simple exhaustion of the aqueous solution with this inert solvent over half the activity disappears. Loss of activity may be due therefore not only to spontaneous changes, which are described in the experimental part, but also to the destruction of loose native combinations and the loss of the mutual effects found only in the native drug.

EXPERIMENTAL.

A. Some Observations upon the Comparative Activity of Fresh Tinctures and Fresh Infusions of Digitalis Made from the Same Drug.— Drug (F2190) stocked November 20, 1918. A 10 per cent. tincture assayed 130 per cent. (11–30–18).

Date.	10% Tincture A'. %	10% Infusion (A). %	A/A'.
11–30–18	130	...	....
1–14–19	135 (F. E.)	...	....
4– 1–19	.....	130	1.0
10– 1–19	110	...	....
9–16–19	.....	105	0.95
1–15–20	.....	90	....

From these assays it appears that in extracting this drug during one year the infusions and tinctures were almost equal (within the limits of error of the method).

Another drug was examined on this point (G3316):

Date.	10% Tincture (A'). %	10% Infusion (A). %	A/A'.
1–10–20	150	...	....
4–14–20	.....	120	....
4–19–20	140	...	0.86

The infusion in this case represents about 90 per cent. of the total activity of the leaves as represented in the official tincture.

In order to find out whether an aged drug would behave differently we reexamined D1625 on this point. A sample of this lot has been stored since December 5, 1916.

Date.	10% Tincture (A'). %	10% Infusion (A). %	A/A'.
3- 1-17	135	...	....
4-19-20	50	...	....
4-16-20	.....	35	0.70

From this result it would appear that the activity of the water soluble principles of an old drug represented less of the total activity than in the fresher leaf.

B. On the Deterioration of 10 Per Cent. Aqueous Infusions.—The infusion prepared from Drug F2190 was allowed to stand at room temperature (4-1-19).

Time.	Activity, %.	% Deterioration.
At beginning	130	0
After 18 hours	120	8
After 24 hours	120	8
After 48 hours	110	15
After 72 hours	95	27

This infusion molded on the 3d day, and the work was repeated by filtering a fresh infusion (4-9-19) through porcelain and collecting the filtrate under sterile conditions.

Date.	Time.	Activity, %.	% Deterioration.
4-8-19	At beginning	130(?)	.....
4-9-19	After 18 hours	120	0- 8
	After 48 hours	110	8-15
	After 90 hours	100	17-23
	After 144 hours	80	33-38
	After 8 days	76	37-41
	After 11 days	67	44-48
	After 16 days	48	60-63
5-3-19	After 25 days	40	66-70
	After 43 days	30	75-77
	After 63 days	30	75
	After 87 days.	27	78

It is thus shown that this elaborately sterilized solution should have been discarded after 3-5 days.

We next proceeded to determine the rate of deterioration when

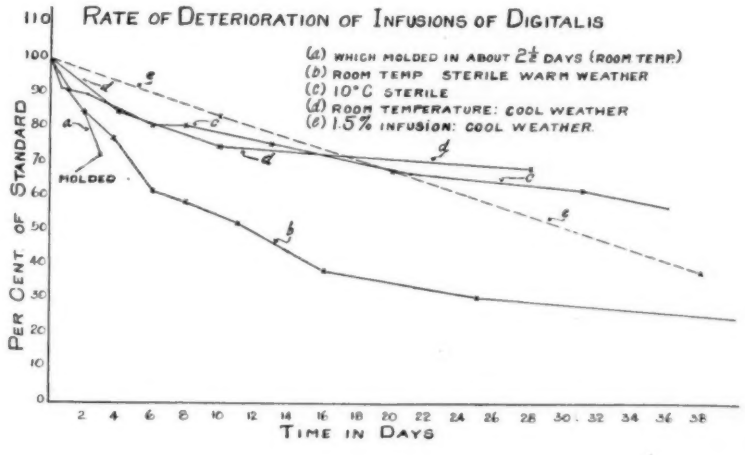
kept in an ice chest at a constant temperature of 10° C. The infusion was prepared and maintained under sterile conditions as above. Drug F2190:

Date.	Time.	Activity, %.	% Deterioration.
9–16–19	At once	105	0
	After 30 hours	95	10
	After 54 hours	95	10
9–22–19	After 6 days	85	19
9–24–19	After 8 days	85	19
9–29–19	After 13 days	80	24
10– 8–19	After 22 days	70	33
10–18–19	After 32 days	65	38
10–23–19	After 37 days	60	43
11–10–19	After 53 days	55	48
12–17–19	After 92 days	45	57
1–26–20	After 132 days	40	61

The above work was repeated at room temperature.

Date.	Time.	Activity, %.	% Deterioration.
10–14–19	After 24 hours	105	0
10–17–19	After 4 days	90	14
10–23–19	After 10 days	80	24
11–11–19	After 28 days	72	31
12–17–19	After 64 days	60	43
1–28–20	After 106 days	40	61

Plotting these curves over to 100 per cent. basis as a starting point in each case.



From these curves it is shown that four infusions passed a point of 20 per cent. deterioration as follows:

(*a*) Which molded in about $2^1/_2$ days.

(*b*) At room temperature and warm weather in 3–4 days.

(*c*) At 10° C. in 8 days.

(*d*) At room temperature in cooler weather; 7 days.

C. Observations on Deterioration of 1.5 Per Cent. Infusion (*U. S. P.*).—We purposely began this investigation with 10 per cent. infusions because it was found that in using 1.5 per cent. solutions that considerable concentration was required before injection, *i. e.*, 1.5 per cent. solutions are poorly absorbed. It might be objected that this concentration rather than the storage produced deterioration.

Expt. I (1–15–20).—A fresh 1.5 per cent. infusion U. S. P. was prepared (F2190), and two aliquots of 100 Cc. were concentrated to exactly 15 Cc. thus making the final concentration 10 per cent. One concentration was made upon the steam bath, while the second was concentrated at 40° in a vacuum distillation apparatus. Both solutions showed the same activity, *i. e.*, 0.00667 Mil per Gm. frog or 90 per cent. of the standard for the tincture.

Expt. II.—Adopting the process of concentration upon the steam bath, we took at intervals 100 Cc. of the sterile 1.5 per cent. infusion and assayed these with the following results:

Date.	Time.	Activity, %.	% Deterioration.
1–16–20	At beginning	90	0
1–26–20	After 10 days	75	17
2– 6–20	After 21 days	60	33
2–24–20	After 39 days	35	61

The curve during the first 20 days is exactly like those described for the 10 per cent. infusions "*c*" and "*d*" and it passes the point recording 20 per cent. deterioration at about the 11th day, but we consider the assay upon the 10 per cent. infusion of the fresher drug, which brings this point earlier, as more accurate.

D. Observations on the Advisability of Adding 10 Per Cent. Alcohol.—In the U. S. P. of 1890, infusion digitalis is made with the addition of 10 per cent. alcohol. It is true that the addition of alcohol clarifies the solution, and tends to prevent turbidity, but the better appearance tends to delude the pharmacist to accept an inaccurate belief that the stability is thereby increased. The following will

indicate that the addition of 10 per cent. alcohol is without favorable influence upon the stability.

A 1.5 per cent. infusion (10 per cent. alcohol) was examined with the following results:

Date.	Time.	Activity, %.	% Deterioration.
4–14–20	3 hours	105	0
4–15–20	27 hours	85	19
4–16–20	51 hours	65	38
4–17–20	75 hours	55	48

SUMMARY.

1. A comparison of the relative activity of digitalis infusions and tinctures of equal concentration shows that there is a difference, the infusion being slightly less active.

2. The infusions deteriorate.

3. Placing a 20 per cent. limit on deterioration: The infusions should be discarded in 3–5 days' time. At lower temperatures this time limit may be extended to 6–7 days.

4. The addition of alcohol adds nothing to the stability of the infusion.

RESEARCH LABORATORY,
THE UPJOHN COMPANY,
KALAMAZOO, MICHIGAN, MAY 1, 1920.

CALCIUM.*

COMPARISON OF TEN DIFFERENT METHODS OF ESTIMATION.

BY GEORGE E. ÉWE.

Standard Material.—Practically white, doubly refractive calcite.

Preparation of Standard Material for Analysis.—The calcite was ground to a fine powder in an agate mortar, dried to constant weight in a platinum dish over a flame which was not permitted to touch the dish. The dried calcite was free from caustic as shown by its failure to turn red litmus paper when 1 Gm. was made into a paste with a little water and tested with litmus paper. The dried calcite was preserved in a glass stoppered weighing bottle.

Impurities in the Standard Calcite.—The usual impurities of calcite are silica, ferric, aluminum, magnesium and manganese compounds.

* From *Bulletin of the International Metallurgical and Chemical Society.*

The standard calcite yielded the following proportions of these impurities:

SiO_2	0.0119	
	0.0123	Av., 0.0121 per cent.
Fe_2O_3-Al_2O_3	0.01319	
	0.01360	Av., 0.0134 per cent.
MgO	None	
Manganese	None	

SILICA.

A 0.5 Gm. sample was weighed in a platinum dish, a very little water was added followed by 5 Cc. hydrochloric acid (1 : 1). The mixture was evaporated to dryness and the residue baked at 200° C. until free from the odor of the acid; 20 Cc. of 1 : 1 hydrochloric acid was then added and the mixture boiled for about 10 minutes; 30 Cc. water was added; the mixture was boiled and the silica collected on a filter and washed well with hot water. The filtrate was put through the same procedure again but only an unweighable amount of silica was obtained. The filter containing the silica was ignited to constant weight over a blast lamp and weighed; the weight of the silica being corrected for the ash of the filter.

FERRIC AND ALUMINUM OXIDES.

The filtrate from the silica was made alkaline with freshly distilled ammonia, only a slight excess of ammonia being used; a few drops of bromine water was added and the mixture boiled until only a very faint odor of ammonia was perceptible. The oxides were filtered off, redissolved in hot dilute nitric aid and reprecipitated with ammonia as before; they were then filtered off, washed thoroughly with hot water and ignited over the blast a short time to constant weight. The weight of the combined oxides was then corrected for the filter ash.

MAGNESIA.

The filtrate from the ferric and aluminum oxides was rendered alkaline with ammonia, boiled and 20 Cc. of boiling saturated solution of ammonium oxalate added. The mixture was boiled for five minutes and allowed to settle. The calcium oxalate was filtered off and washed with hot water several times, redissolved in dilute hydrochloric acid and reprecipitated as before. The filtrates from the two precipitations of calcium oxalate were acidified and evaporated to about 150 Cc.; cooled and treated with 17 Cc. of 28 per cent.

ammonia water, followed by 15 Cc. of a 10 per cent. sodium phosphate solution. The solution was stirred well and allowed to stand over night. No weighable amount of precipitate could be obtained.

MANGANESE.

Volhard's reaction (a solution of 0.5 Gm. of the calcite in 5 Cc. conct. nitric acid was boiled with an excess of lead peroxide, then diluted with 25 Cc. of water and the insoluble matter allowed to settle), yielded no trace of violet-red color, therefore it was concluded that no more than a negligible proportion of manganese was present, if any.

THEORETICAL $CaCO_3$ CONTENT OF STANDARD MATERIAL.

No evidence was obtained as to how the Fe_2O_3 and Al_2O_3 were combined in the calcite but it was arbitrarily taken that the two oxides were present in equal proportions and combined as carbonates in the "ic" state, since the proportions were too small to exert any but a negligible influence on the calcium determinations.

Likewise the state of combination of the SiO_2 was not determined, and while it may have been present in some form of combination with calcium, yet the amount concerned would be negligible, and as a consequence the SiO_2 was arbitrarily considered as being present in the free state.

The proportion of silica (SiO_2) was	0.0121 per cent.
The proportion of Fe_2O_3 plus Al_2O_3 was 0.0134 per cent., which, figured to the carbonate state, amounted to	0.0286 per cent.
The total of impurities, therefore, was	0.0407 per cent.

The difference between this figure (0.0407 per cent.) and 100 per cent. was considered to represent the $CaCO_2$ content of the standard material. Thus, the $CaCO_3$ content was theoretically 99.959 per cent.

DETAILS OF THE DIFFERENT METHODS OF ESTIMATION OF CALCIUM.

No. 1. Precipitating as calcium oxalate and weighing as calcium carbonate.

A 0.5 Gm. sample was freed from silica and iron and aluminum by the methods mentioned under "Methods of Determining Impurities." The calcium was precipitated as oxalate as mentioned under "Methods of Determining Impurities," except that it was washed more thoroughly. The calcium oxalate was dried on the filter,

ignited in a platinum crucible separate from the filter, to a faint redness for 15 minutes in order to convert all of the oxalate to carbonate. This ignition may result in the formation of a little calcium oxide, so, after weighing, the contents of the crucible were moistened with water and a small lump of ammonium carbonate added; the ammonium carbonate was driven off by heating the crucible on a water bath and the crucible then ignited to a very faint redness. This treatment was repeated until constant weight was obtained and the contents of the crucible no longer turned red litmus paper.

Results..... No. 1—99.64
2—99.49 Av., 99.57 per cent. $CaCO_3$

No. 2. Precipitating as calcium carbonate and weighing as such.

A 0.5 Gm. sample was freed from silica and iron and aluminum oxides by the methods outlined under "Methods of Determining Impurities." The filtrate from the iron and aluminum oxides was treated with a little ammonia water and then ammonium carbonate solution in slight excess was added. The precipitated calcium carbonate was allowed to settle for several hours on the top of a covered hot water bath; it was then filtered off and washed with water containing a little ammonia; dried and ignited separate from the filter and weighed as calcium carbonate as described under Method No. 1.

Results..... No. 1—100.05
2—100.10 Av., 100.07 per cent.

No. 3. Liberating CO_2 by means of hydrochloric acid and weighing the liberated CO_2 in KOH solution.

The calcite was placed in an Erlenmeyer containing a three hole rubber stopper. Through one of the holes a glass tube was placed. This glass tube extended to the bottom of the Erlenmeyer. The other end of the tube was connected with several potash bulbs to prevent access of the CO_2 of the air into the Erlenmeyer. The second hole of the rubber stopper contained a glass tube which reached just below the stopper. The other end of the tube was connected first with a calcium chloride tube, then with a bulb containing sulphuric acid, then with a weighed potash bulb followed by a weighed soda-lime tube which was guarded from the air by an unweighed soda-lime tube. The third hole in the stopper of the Erlenmeyer contained a separatory funnel containing about twice the quantity of recently boiled 10 per cent. hydrochloric acid theoretically required to liberate all of the CO_2 from the sample of calcite.

The assay was made as follows: Air was drawn for about 15 minutes through the apparatus by means of an aspirator attached to the soda-lime guard tube, thus the air entered the train of potash bulbs and was depleted of CO_2, it then entered the Erlenmeyer containing the sample and then in turn the calcium chloride tube and sulphuric acid bulb which depleted it of moisture. The air then entered the weighed potash bulb from which it took up some moisture and which it then deposited in the weighed soda-lime tube which was guarded against the moisture and the CO_2 of the air and aspirator, by the unweighed soda-lime tube at the end of the train. The weights of the weighed potash bulb and soda-lime were then obtained and any variation from their previous weights was noted. The weighed potash bulb and soda-lime tube were replaced in the train, the current of the air was re-established and the 10 per cent. hydrochloric acid in the separatory funnel was allowed to drip into the Erlenmeyer where it came into contact with the calcite and liberated CO_2 which was dried by passing through the calcium chloride tube and sulphuric acid bulb and then caught by the weighed potash bulb and soda-lime tube. The air was allowed to pass for 15 minutes, during which time the contents of the Erlenmeyer were stirred up by the current of air and warmed a trifle by external heat. The weighed potash bulb and soda-lime tube were then allowed to stand in the balance case for about 15 minutes and weighed. When not connected in the train, the ends of the weighed potash bulb and soda-lime tube were kept closed by small rubber nipples which were removed momentarily and then replaced before each weighing in order to insure absence of pressure or vacuum within the bulb and tube. The increase in weight of the potash bulb and tube corrected as found necessary by the blank was considered to be due to the CO_2 from the calcite and was calculated into terms of $CaCO_3$.

Results..... No. 1— 99.57
2—100.50 Av., 100.03 per cent. $CaCO_3$

No. 4. Precipitating as calcium oxalate and weighing as calcium oxide.

In all respects this method was similar to No. 1 with the exception that the calcium oxalate after gentle ignition was made into a paste with water and spread around the sides of the crucible so that the calcium oxide would be obtained in a very thin layer. This was found essential because of the tenacity with which calcium carbonate retains its carbon dioxide. Finally the crucible and its contents

were ignited to constant weight before a blast lamp and the weight was corrected for the filter ash.

Results..... No. 1—99.75
2—99.98 Av., 99.86 per cent.

No. 5. Precipitating as calcium sulphate and weighing as such.

0.5 Gm. of the calcite was freed from silica and iron and aluminum oxides as mentioned under "Methods of Determining Impurities." The filtrate from the iron and aluminum oxides was treated with a slight excess of dilute sulphuric acid and the solution was diluted with twice its volume of alcohol. The precipitate of calcium sulphate was allowed to settle over night, filtered off, washed thoroughly with alcohol, dried and ignited separately from the filter using only a cherry-red heat for ignition. The weight of ignited $CaSO_4$ was then corrected for filter ash and calculated to $CaCO_3$.

Results..... No. 1—99.64
2—99.73 Av., 99.68 per cent.

No. 6. Precipitating as calcium oxalate and weighing as calcium sulphate.

A 0.5 Gm. sample of the calcite was treated as in Method No. 1 to obtain the calcium oxalate which was then separated from the filter. The filter was ignited and the calcium oxalate was then placed in the crucible. A little 10 per cent. sulphuric acid was then added to the contents of the crucible which was then thoroughly dried on a water bath and very carefully ignited with the cover on, gradually increasing the heat until a cherry-red heat was attained. The crucible and contents were then weighed. The treatment with sulphuric acid was repeated until constant weight was obtained upon subsequent weighings.

Results..... No. 1—100.15
2—100.64 Av., 100.39 per cent.

No. 7. Precipitating as calcium oxalate and titrating with potassium permanganate.

The sample of calcite was treated as in Method No. 1 to obtain the calcium oxalate which was filtered off, washed with hot water until free from soluble oxalate, transferred to the beaker in which it was precipitated by spreading the filter paper against the side of the beaker and washing down the precipitate first with hot water and then with dilute sulphuric acid (25 per cent.); reserving the washed filter by hanging it across the edge of the beaker; 50 Cc. of water

was then added followed by 10 Cc. of concentrated sulphuric acid; the solution was heated just to boiling and then titrated to the first pink change with 0.1 *N* potassium permanganate; then the filter paper was dropped in causing the pink color to be discharged owing to the trace of oxalate still present in the paper and finally the end point was obtained by a few drops of the 0.1 *N* potassium permanganate. The permanganate was standardized against calcium carbonate obtained from the standard calcite as in Method No. 2. This calcium carbonate was considered as being 100 per cent. $CaCO_3$. The method of standardization was as follows:

A weighed portion of the freshly ignited $CaCO_3$ (free from CaO) was dissolved in hydrochloric acid and precipitated as calcium oxalate as mentioned under "Methods of Determining Impurities," and this calcium oxalate was dissolved in sulphuric acid (25 per cent.) and hot water as mentioned a few lines above and the permanganate solution run in to the end point, including the few additional drops required by adding the washed filter upon which the oxalate was collected, to the titrated liquid.

Results..... No. 1—99.91
2—99.46
3—99.90
4—99.47 Av., 99.68 per cent.

No. 8. Precipitated as calcium oxalate from a slightly acid solution.

A 0.5 Gm. sample of the calcite was dissolved directly in dilute hydrochloric acid; the solution was diluted to 150 Cc. and made barely alkaline with freshly distilled ammonia; a hazy precipitate of ferric and aluminum hydroxides resulted; hydrochloric acid was added drop by drop until acid, then 2 drops in excess was added. The mixture was then boiled and the calcium totally precipitated as calcium oxalate by means of an excess of ammonium oxalate solution. The precipitated calcium oxalate was allowed to settle and was then filtered off and titrated with 0.1 *N* potassium permanganate as in Method No. 7.

Result..... 99.82 per cent. $CaCO_3$

The experiment was repeated using acetic acid to dissolve the calcite and adding 2 drops of acetic acid in excess before precipitating with ammonium oxalate.

Result..... 99.91 per cent. $CaCO_3$

Discussion of Method No. 8. The results obtained by this method indicate that calcium can be precipitated quantitatively as oxalate from a slightly acid solution. The acidity of the solution is due solely to the presence of oxalic acid which is liberated by the slight excess of hydrochloric acid or acetic acid present in the solution. This fact is made use of by Meade for the rapid determination of calcium in cement without previous separation of silica and ferric and aluminum oxides. The method described by Meade is essentially as described above with the following exceptions: The acid solution of the cement is rendered just alkaline with ammonia and then 10 Cc. of a 10 per cent. solution of oxalic acid is added to render the mixture acid and redissolve the hydroxides of iron and aluminium which are partially precipitated when the mixture is rendered alkaline with ammonia. In order to test the value of Meade's method a sample of limestone yielding the following analysis by Method No. 7 was employed as a standard:

SiO_2	3.320		
	3.300	Av.,	3.310 per cent.
Fe_2O_3-Al_2O_3	1.030	Dup.,	1.030 per cent.
$CaCO_3$	77.130		
	77.125	Av.,	77.127 per cent.
$MgCO_3$	18.377		
	18.332	Av.,	18.355 per cent.
		Total.,	99.822 per cent.

Meade's method was applied in detail to a sample of this limestone with the one exception that the calcium oxalate was finally weighed as calcium sulphate according to Method No. 6, instead of being titrated by permanganate as required in Meade's Method. The yield of $CaCO_3$ was 77.18 per cent. Another assay was made using acetic acid to dissolve the limestone and a yield of 77.31 per cent. $CaCO_3$ was obtained.

No. 9. Liberation of CO_2 by dilute hydrochloric acid and calculating loss of CO_2 into terms of $CaCO_3$.

The apparatus known as "Geissler's new form carbonic acid determination apparatus," listed on page 103 of the catalogue of Eimer and Amend, New York, was employed.

The method consists of treating a weighed sample of the calcite in the apparatus with dilute hydrochloric acid and drawing the liberated CO_2 through the sulphuric acid compartment of the appa-

ratus; the entrance and exit of the apparatus being properly guarded by bulbs containing concentrated sulphuric acid.

Results..... 99.68
99.93 Av., 99.80 per cent. $CaCO_3$

No. 10. Residual titration method.

A 0.5 Gm. sample of the calcite was placed in a flask connected with a straight tube reflux condenser. A measured excess of 0.2 *N* H_2SO_4 was run into the flask. The flask was connected with the reflux condenser and heated by a flame until the reaction was complete. The condenser was then washed with water, allowing the washings to flow down into the flask and the excess of 0.2 *N* H_2SO_4 was titrated with 0.1 *N* Na_2CO_3, using methyl orange as indicator. The 0.1 *N* Na_2CO_3 was standardized by accurately weighing out the proper quantity of freshly ignited, chemically pure sodium carbonate and the 0.2 *N* H_2SO_4 was standardized against the 0.1 *N* Na_2CO_3.

Results..... 99.66
99.83 Av., 99.75 per cent $CaCO_3$

For convenient comparison the results are herewith presented in tabular form:

Theoretical $CaCO_3$ content of standard material, 99.959 per cent.

Method.	$CaCO_3$ Found.	
No. 1 —Precipitating as calcium oxalate and weighing as calcium carbonate...	99.64	
	99.49	Av., 99.57 per cent.
No. 2—Precipitating as calcium carbonate and weighing as such.....	100.05	
	100.10	Av., 100.07 per cent.
No. 3—Liberating CO_2 with HCl and weighing liberated CO_2 in KOH solution	99.57	
	100.50	Av., 100.03 per cent.
No. 4—Precipitating as calcium oxalate and weighing as calcium oxide.....	99.75	
	99.98	Av., 99.86 per cent.
No. 5—Precipitating as calcium sulphate and weighing as such.....	99.64	
	99.73	Av., 99.68 per cent.
No. 6—Precipitating as calcium oxalate and weighing as calcium sulphate....	100.15	
	100.64	Av., 100.39 per cent.

Method.				CaCO₃ Found.
No. 7—Precipitating as calcium oxalate and titrating with potassium permanganate.....	99.91	99.90		
	99.46	99.47	Av.,	99.68 per cent.
No. 8—Precipitating as calcium oxalate from a slightly acid solution.....	99.82			
	99.91		Av.,	99.87 per cent.
No. 9—Liberation of CO_2 by HCl and calculating loss of CO_2 into terms of $CaCO_3$.....	99.68			
	99.93		Av.,	99.80 per cent.
No. 10—Residual titration method.....	99.66			
	99.83		Av.,	99.75 per cent.

PHARMACEUTICAL LABORATORIES,
H. K. MULFORD CO.,
PHILA., PA.

PHILADELPHIA COLLEGE OF PHARMACY.

SPECIAL MEETING.

A special meeting of the Philadelphia College of Pharmacy was held April 26, at 3 P.M., to hear the reports of the Organization Committee on Centennial Celebration.

The Executive Secretary of the Committee, Professor E. Fullerton Cook, read the report.

At the Annual Meeting of the College, held March 29, 1920, following the discussion of the Centennial Celebration of the founding of the College, the President was directed to appoint a committee to prepare plans for a suitable celebration. The President appointed on this committee Dr. R. V. Mattison, Aubrey H. Weightman, representing the college; George M. Beringer, Wm. L. Cliffe, Joseph W. England, for the Board of Trustees; Charles H. LaWall, E. Fullerton Cook and F. P. Stroup, for the Faculty, and Otto Kraus, R. P. Fischelis, for the alumni. The Board approved the appointments, as also that of E. Fullerton Cook as Executive Secretary.

The Organization Committee has held a number of meetings and make the following recommendations:

First, *Time.*—It is suggested that the entire Commencement Week in June, 1921, be utilized for the main Centennial Celebration.

Second, *Funds.*—It is essential for the proper carrying out of the

programme, and the establishment of the College on a plane which is worthy of its past, and which will establish a proper endowment for its future development, be established. It is believed that it will be necessary to secure *Two Million Dollars*. This should be our avowed aim for an ample endowment and building fund for the Philadelphia College of Pharmacy.

In the campaign for funds three separate classifications are suggested:

A.—Endowment { Fellowships / Professional Research / Library

B.—Buildings

C.—Maintenance and Development.

That donors may assign their contributions to any of these three purposes, and it is hoped that suitable memorial buildings, professorships and laboratories may be established.

Third, *Coöperation from Other Associations.*—Pharmaceutical Associations be invited to arrange to hold their annual meetings in 1921, in Philadelphia, or if this be impossible, to send delegates to the College Centenary Celebration. A letter of invitation has been prepared and will be sent to the various associations. The Committee desires to suggest that the Centennial Celebration of the Philadelphia College of Pharmacy be made broad and useful to the profession by emphasizing the fact that it is the Centennial of the establishment of pharmaceutical education in America.

Fourth, *Centennial Volume.*—The sub-committee on Centennial Volume, Mr. George M. Beringer, chairman, presents the following tentative report: It is difficult at this time to present a complete outline of what the Historical Volume should contain; so this report must be viewed as only a tentative suggestion for the contents of the proposed volume.

1. History of the College.—This will lead to chapters on the influence of the College upon pharmaceutical education, Pharmacopoeial and National Formulary revisions, State and National Organizations, Industrial and Trade Developments, Medical Practices, Legislation, etc. Included in this will be the History of the Department of Pharmacy of the Medico-Chirurgical College.

2. History of the Combined Alumni.—This should be a distinctive feature, and in connection therewith short biographies of

each graduate should be given, if available. These can possibly be best presented with the sketch of each graduating class, and in addition an alphabetical list of all the graduates should be included.

3. History of each member of the Faculty since the Foundation of the College.—This can well be made a leading part as most of these have been men of ability and marked influence upon the events of their day, and moreover the Alumni have a warm sentiment for their old professors.

4. History of the Officers and Prominent Members of the College.—Our history is replete with the efforts and services of many eminent men whose work in behalf of pharmacy, the college, and public welfare, should be permanently recorded in such a volume.

5. History of the AMERICAN JOURNAL OF PHARMACY and its Editorial Management, during more than Ninety Years of its Publication.

6. The Story of the Library, Museum and Herbarium and of the Laboratories.

7. The Centenary.—Full account of the celebration, plans and functions. As the plans develop, doubtless many other subjects that must be included in the Centennial Volume will become evident.

If it is determined to issue a volume such as is outlined herewith, the enormity of the task must be appreciated, and an active committee should be appointed at an early date. The preparation of the manuscript will entail much time, labor and expense. The committee should have authority to employ such outside assistance as may be necessary.

We cannot at this time gauge the possible expense of this project. Your committee are of the opinion that the College should be largely reimbursed for this expense by the sale of the volume.

Fifth, *General Committee on Centennial.*—This large General Committee, not limited to one hundred, as first proposed, shall consist of members of the College, alumni and friends of the College. It shall represent all activities into which our alumni have entered and all geographical sections where they may reside. The following classification has been suggested:

Officers of the College.

Members of the Board of Trustees.

Faculty of the College.

Pharmacists
- Men Pharmacists
- Women Pharmacists
- Army Pharmacists
- Navy Pharmacists

Physicians
Wholesale Druggists
Chemical Manufacturers.
Pharmaceutical Manufacturers.
Editors and Journalists.
Chemists.
Members of State Boards of Pharmacy.
Salesmen.

The President of the College shall be the chairman of this General Committee.

SUB-COMMITTEES.

It is further suggested that there shall be established sub-committees on

1. Site.
2. Contributions.
3. Historical Data and Centennial Volume.
4. Plans for the Centennial Celebration.
5. College Membership.
6. Publicity (including conventions).

Executive Committee.—The chairmen of these special committees, acting with the President of the College, shall constitute an Executive Committee who will be immediately responsible for the carrying out of the plan.

Campaign Funds.—The organization committee suggests that the members of the College approve an appropriation by the Board of Trustees of $10,000, to provide funds for necessary expenses.

Site.—The President and other members have been in communication with the Mayor and other officials of the City and the Fairmount Park Commissioners concerning a suitable location upon the parkway for the new college buildings.

Buildings.—The President announced that Mr. Horace Trumbauer, one of the most prominent architects of Philadelphia, is now drawing plans for the new college buildings.

The programme thus placed before the members of the college calls for a unity of purpose, an enthusiasm and a faith in the institution and its future which will be worthy of the traditions of the Philadelphia College of Pharmacy. Always a leader, always maintaining

the highest ideals, the opportunity is offered our alumni and friends to place the college on a permanent foundation for the second hundred years of its history. Every alumnus is proud of the college. Each will be honored by its increased pre-eminence among scientific organizations, and by the status which pharmacy must assume in the development of modern medical practice. Pharmacy fixed upon the professional plane which is thus assured, will continue its great service to the medical profession and to humanity at large and will thus increase its prestige and distinction.

The report was received and the recommendations considered seriatim.

Many of the members took part in the discussion that followed the consideration of each recommendation and the report with only several slight amendments was adopted as a whole.

Dr. Robinson asked consideration of the plan proposed at the annual meeting of enlisting the coöperation of those graduates of the College who are now practicing medicine. He thought there were about 250 of these graduates in Philadelphia or vicinity alone. He suggested an organization be formed to be called "The Medical Section of the Alumni of Philadelphia College of Pharmacy. The title was approved and it was believed this section would be a valuable help in the Centennial efforts.

There was some discussion as to the continuance of the General Committee on Centennial, when, on motion, it was voted that the committee be continued as an Advisory Committee.

C. A. WEIDEMANN, M.D.,
Recording Secretary.

ISOLATION OF THE ACTIVE PRINCIPLE OF THE THYROID GLAND.*

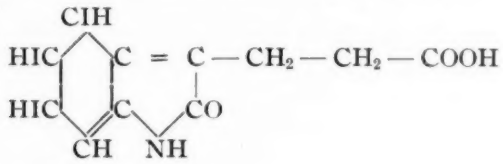
Among the achievements of biological chemistry the isolation in a crystalline form, and as a definite chemical body of the blood-raising principle present in the suprarenal capsule marks a distinct epoch, and the investigations to which adrenalin has since its discovery been submitted have removed the veil from many processes connected with the life of the organism. Now comes the news from America of another great stride forward in our knowledge of biology, of a discovery that may have far-reaching effects on thera-

* From *The Chemist and Druggist*, March 27, 1920.

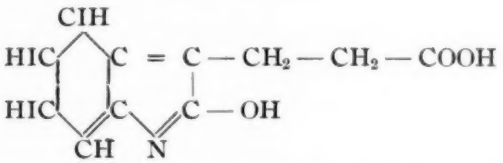
peutics. E. C. Kendall, working in the clinic of the Brothers Mayo, of Rochester, has succeeded in isolating in a crystalline form the iodised active principle of the thyroid gland, that mysterious body which seems to play such an exceedingly important rôle in living processes. In the *Journal of Biological Chemistry* (Vol. xxxix.) he reviews his investigations on this point, which began as far back as 1910. At first he used barium salts to separate this substance, to which the name of "thyroxin" has been given, and first succeeded in isolating it in December, 1914, the total amount obtained being 100 milligrams. In February, 1916, the action of carbonic acid on the process of isolating this body was discovered, resulting in the production of 7 grams by May, 1917. This amount was used to ascertain the chemical structure of the new body, and based on these findings. Osterberg succeeded in preparing a small quantity of thyroxin by synthetic methods. At the time of publishing his paper, the author had succeeded in preparing about 35 grams of thyroxin from 3,275 kilograms of fresh thyroid glands, obtained almost exclusively from pigs. The yield consequently works out at the ratio of 1 gram of thyroxin for 100 kilograms of thyroid gland. The following process was adopted: The fresh thyroid glands are hydrolysed in a 5 per cent. soda solution. The fats are removed by being transformed into insoluble sodium soap. The alkaline filtrate is acidified after cooling, and the precipitate thrown down contains practically the whole of the thyroxin present. This precipitate is separated and dissolved in a solution of soda, and again precipitated by the addition of hydrochloric acid. The precipitate, after drying at ordinary temperatures, is dissolved in alcohol (95 per cent.), and to neutralize the remaining excess of hydrochloric acid present in this dried precipitate, solution of soda is added, which gives rise to a compact, black and sticky precipitate, which is separated by filtration. To the alcoholic filtrate a very concentrated, hot aqueous solution of barium hydroxide is added, and the mixture is boiled under a reflux condenser to remove all the impurities and coloring matter present. A trace of soda is added to the filtrate, through which a current of carbonic acid gas is passed, whereupon the carbonates which have formed are removed by filtration, and the alcohol by distillation. Hydrochloric acid is now added to the aqueous solution, the precipitate thrown down is dissolved in an alkaline alcoholic solution, and the latter saturated with carbonic acid gas. The solution is filtered, the alcohol removed by dis-

tillation, and after standing for a time the mono-sodium salt of thyroxin separates out. The latter is purified by dissolving it in an alkaline alcoholic solution, then saturating with carbonic acid gas and distilling off the alcohol; the same operation may be repeated five or six times, using acetic acid in the place of carbonic acid, until the thyroxin as "4-5-6-hydro-4-5-6-iodo-2-oxy-β-indolpropionic acid," of the empiric formula $C_{11}H_{10}NO_3I_3$.

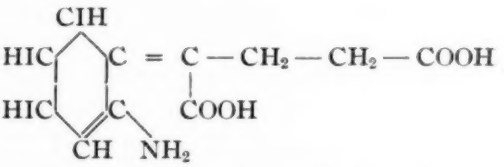
It occurs in three different forms: (1) A ketonic form:



(2) A tautomeric enolic form:



(3) With an open pyrrolic nucleus, due to fixation of H_2O, so that this body possesses both the characters of a di-acid and of a primary amine:



The author states that the first form is the anhydride of the third, and these bear the same relationship to each other as creatinin to creatin. The third form is, therefore, "thyroxin," and occurs as such in the thyroid gland; it cannot be obtained in crystalline form, but crystallizes only on being converted into its anhydride. Kendall found that during the months of January, February and March the glands contain only a slight percentage of thyroxin, whereas during the summer months there is an increase amounting to 400 per cent., and this is the time when the glands should be used for the extraction of their thyroxin.

DEVELOPMENT OF KAURI GUM INDUSTRY IN NEW ZEALAND.*

By Consul General Alfred A. Winslow,
Auckland, February 10, 1920.

Since the close of war more attention has been given to the development of the kauri-gum industry in New Zealand than any time during the past five years, with the result that it seems probable that greater quantities of kauri gum and its by-products will be produced than heretofore.

Oil from Kauri Peat Swamps.—There are very extensive kauri peat swamps in New Zealand that have been placed at the disposal of interested parties by the New Zealand Government on a leased basis. The present area for which the Governor General by Order in Council may set apart for the development of this industry is 10,000 acres on a basis of leases for 42 years, with no party to receive a lease exceeding 3,000 acres. The lessees have to pay a low rental and also a royalty on kauri oil and other valuable products obtained.

The New Zealand Peat Oils (Ltd.) have taken one grant of 3,000 acres, and are now developing it with reasonably good prospects of success, having tested four samples taken from different depths of the swamp which yielded an average of 29 gallons of crude kauri-gum oil to the ton, with a yield of 4,300 cubic feet of gas per ton. This company proposes to push the development of this industry during the coming year.

Kauri Gum Extraction and Grading.—A new method of gathering and grading kauri gum has lately been undertaken, whereby kauri peat swamps that are thoroughly pregnated with kauri gum in different stages of decomposition can be worked with reasonably good success, according to late reports. It is claimed that if this process succeeds, as indicated at present, there can be more kauri gum secured from the deposits in the North Island than has been secured to date, though of an inferior grade to that which has been gathered.

It is proposed to grade this kauri gum into about three or four grades according to size, which means largely according to the degree of composition. It is claimed any grade would be sufficient in quality for the manufacture of the lower grades of varnishes and similar products, and would be exceptionally good for the manufacture of linoleums and that line of goods; and it is expected that

* From *Commerce Reports*, April 8, 1920.

these qualities of kauri gum can be produced in such quantities as to be sold for a very much more reasonable price in proportion to what kauri gum has been sold for heretofore.

Production of Kauri Gum.—The production of kauri gum during the seven years previous to the beginning of the war averaged not far from 8,000 tons per year, while since that time it has scarcely averaged 4,000 tons, and during the year ended, March 31, 1919, only amounted to 2,338 tons. Of the output of 8.473 tons for 1914 the United States took 4,531 tons, the United Kingdom 3,335 tons, Germany 373 tons, and the remainder was well scattered over 10 other countries; while for the year ended March 31, 1919, the United States took 1,371 tons of the 2,338 tons, while the United Kingdom took 346 tons, Canada 572 tons, and Australia 49 tons.

Of late quite large quantities of kauri gum have been going forward to the United States as shipping space could be obtained, and there are still large quantities in hand here for export, and it would seem there would be no difficulty in getting all of the kauri gum necessary from now on.

ELEMI.*

Elemi is a drug very little used in modern pharmacy, being chiefly employed in the form of a stimulating ointment in naval surgery, and finding a place for that purpose in the medicine-chests kept on board ships, foreign as well as English. It has, however, a much wider employment in the manufacture of printing-ink, in which its viscosity and adhesiveness and honey-like consistence are of considerable advantage. It is of use also in felting and varnish making and plasters. In the *Scientific American* attention is directed to the elemi of Porto Rico, derived from *Dacryodes hexandra* Griseb., and known in that island under the name of Tabanuco. This tree is the best timber-tree of the island, the trunk attaining a height of 50 feet to the first branch, and a diameter of 5 feet near the base. When the smooth bark is tapped by V-like incisions formed by two oblique strokes of the hatchet, the oleoresinous juice flows out and is collected in vessels when it is to be used for medicinal purposes, being employed in native practice as a stimulant ointment for indolent ulcers. It is also used for torches and as incense. For torches the juice is allowed to run down a central stick and formed

*From *The Chemist and Druggist*, March 20, 1920.

into a cylinder and covered with the leaf of the royal palm. As the volatile oil evaporates a solid candle or torch is formed. For incense also the oleoresin is allowed to solidify. But the tree is not confined to Porto Rico, as it occurs in several of the lesser Antilles Islands and in Costa Rica, where it is also known by the same name, Tabanuco.

In Dominica it is known as the *Gommier* or *Gommier rouge*, and is believed to be the source of the elemi of that island. In St. Lucia it is called the *Gommier à Canot*. But the word *Gommier* may almost be taken as synonymous with elemi, since the various trees called by that name yield an oleoresin having most of the properties of elemi, though differing somewhat in odor from the Manila elemi of the Philippines, which was formerly official in various Pharmacopoeias. Thus the Gommier of the Windward Islands is *Bursera gummifera* Linn., known in Jamaica as the birch-tree, and in St. Vincent as the turpentine tree. A second *Gommier* in St. Lucia is the *Protium Guianense* March, which is distinguished as the *Gommier à l'encens*. It yields also the *encens* of Cayenne and the *Tacamahaca* of Venezuela. All these trees belong to the same natural order *Burseraceoe*, to which also the frankincense tree of Somaliland belongs. There has been much confusion regarding the botanical names of the trees yielding the different kind of elemi, or oleoresins that have been imported into Europe from time to time under these names. Thus Manila elemi was for many years attributed to *Canarium commune*, and it is only since the American occupation of the Philippine Islands that it has been shown to be the product of *Canarium Luzonicum* Miq., and partly of *Canarium villosum*, Benth. and Hook. f. It may be regarded as probable, however, that African elemi from Angola is yielded by *Canarium edule*, Hook f., and that of Central Africa, Uganda and Southern Nigeria by *Canarium Schweinfurthii*, Engl.; Mexican elemi by *Amyris Plumieri*; British Guiana by *Protium Guianense*, March, and *P. heptaphyllum*, March; Brazilian elemi by *Protium Icicariba*, March; and Mauritius elemi by *Canarium Mauritianum*, Blum. It is therefore evident that various oleoresins more or less resembling Manila elemi occur in tropical countries in various parts of the globe, and are possibly capable of commercial use. At present few of them, except the Manila elimi and the *Gommier à l'encens* of the West Indies, are collected in a clean condition, and most of them are not even purified by melting and straining.

The essential oils of these oleoresins have in a few cases been examined and some of their constituents determined. Thus in Manila elemi and that of Southern Nigeria and of Uganda the odor of phellandrene is prominent. Limonene is also present in some varieties, and in one terpinene and terpinolene. But the possible uses of these oils in varnish making and in perfuming soap have yet to be worked out.

EFFECTS OF QUININE ON THE TISSUES.*

There are circumstances in which the vigorous action of adequate quantities of quinine in the circulation is highly desirable. The alkaloid itself is rather insoluble; but some of the salts of quinine are fairly soluble, and are absorbed with considerable readiness from the gastro-intestinal canal. The "Pharmacology of Useful Drugs,"[1] issued by the American Medical Association, makes it seem probable that too much importance has been attached to the influence of the degree of solubility of the salts of quinine in their absorption, and too little attention to the selective capacity of the gastro-intestinal tract for absorbing them. In the United States, in contrast with European countries, quinine sulphate is the salt generally prescribed, although the hydrochloride is decidedly more soluble and ought to be preferred. However that may be, numerous endeavors have been made to secure more effective quinine therapy, particularly in malaria, by modes of administration other than the usual oral path.

Baccelli first suggested the intravenous injection of solutions of salts of quinine when the symptoms of malaria are so severe as to threaten grave peril to the patient. Subcutaneous or intramuscular injection has also been recommended and frequently employed, particularly in critical cases. Despite the use of care in giving such treatment, much discomfort and pain may be caused; and even if aseptic precautions are studiously applied, a considerable amount of induration if not actual abscess formation is likely to occur at the site of injection. Most therapeutists recognize this danger and warn against it.

That tissue necrosis is produced by strong solutions of quinine salts need not be a surprise when it is recalled that for more than

* From *Jour. Amer. Med. Assoc.*, Feb. 14, 1920.

[1] Hatcher, R. A., and Wilbert, M. I.: "Pharmacology of Useful Drugs," Chicago, *Amer. Med. Assoc.*, 1915.

half a century the substance has been regarded by toxicologists as a protoplasmic poison capable of destroying various forms of animal and vegetable cells. The suggestion has at times been made that, because of the observed tissue damage following intramuscular injections, this mode of administration should be abandoned. A recent experimental inquiry by Colonel Dudgeon[1] of the British Army Medical Service, on the effects of injections of quinine into the tissues throws new light on the actual conditions developed by the procedure. It has been suggested that in order to avoid the untoward results, intramuscular medication should be carried out only with dilute solutions. Dudgeon points out, however, that injection of quinine in solutions so dilute as to avoid edema and tissue necrosis is not of practical utility in man. Concentrated preparations of quinine produce more intense necrosis than do dilute ones; but when the latter are such as to be of therapeutic value, they also excite the tissue changes at the site of infection.

A concentrated solution of quinine is absorbed rapidly from the tissues even in patients who are moribund. Dudgeon insists on the necessity of realizing that tissue necrosis—spreading edema and local blood destruction—are produced by the solvents frequently employed for quinine administration; and the effects are only slightly inferior to those excited by the quinine salts and the alkaloid. No advantage was gained by the addition of oil or by injecting the alkaloid dissolved in alcohol or ether. Necrosis of blood vessels in the area of injection is a common result. This leads, according to Dudgeon, to hemorrhages into the tissues. Extensive damage of these sorts in the neighborhood of an important nerve trunk may result in nerve palsy.

It may be that a choice between disadvantages will dictate the continuance of intramuscular injections of quinine. If so, the limitations and dangers of their use in practice need to be appreciated clearly and specifically. Daily doses administered for periods of a week and more in the glutal region—a favorite site for injection—are not unknown. Such cases have been found, further, to retain only fragments of healthy tissues in the muscular tracts involved. Hence one can appreciate the force of Dudgeon's warning that repeated intramuscular injections of quinine should not be given into the same area of muscle or tissue directly adjacent, because otherwise permanent injury of muscle or nerves may result.

[1] Dudgeon, L. S.: "On the Effects of Injections of Quinine into the Tissues of Man and Animals," *J. Hyg.*, 18: 137 (Oct.), 1919.

THE CULTIVATION OF MEDICINAL PLANTS IN FRANCE AND THE FRENCH COLONIES.*

A very interesting account has recently been published[1] of the development of the movement instituted in Paris in the early years of the war for extending the cultivation in France and French Colonies of medicinal plants and plants used for the production of volatile oils. The following brief review of the progress made and of the organization adopted shows the energy displayed by the French in their endeavor to rehabilitate what was formerly a prosperous industry and to free themselves from dependence upon foreign countries for raw material. The support which the movement has received from the Government through the Ministry of Commerce and Industry stands in sharp contrast with the treatment received by a similar movement in this country.

France has gradually lost by foreign competition the premier position which it formerly occupied in the collection and cultivation of medicinal plants, and has consequently been compelled to purchase these, chiefly from Germany and Austria, to the value of nearly 20 million francs yearly. When these supplies were cut off by the war she had perforce to foster both collection and cultivation.

The first attempts, praiseworthy as they were, failed to produce results of immediate value, and it was found necessary to coördinate isolated efforts. The importance of the work has already been publicly recognized. The Minister of Commerce and Industry urged on the President of the Republic the desirability of appointing a committee to organize and increase the cultivation, collection and preparation of medicinal plants, and in 1918 a Committee of Medicinal Plants was officially formed. The President of this Committee was a professor of the Museum of Natural History and the Vice-Presidents were a professor of the Faculty of Science and a professor of the Ecole Supérieure de Pharmacie. Among the twenty-six members of the Committee were representatives of the Colonial Office, of the Jardin Colonial, of the Ministry of Agriculture, of the Ministry of Public Instruction, of the Ministry of Commerce, of the Association Générale des Herboristes de France, of the Association des Syndicats Pharmaceutiques de France, etc. An exceedingly strong

*From *The Pharm. Jour. and Pharmacist,* March 6, 1920.

[1] "Le Comité interministériel des Plantes Médicinales et des Plante à Essences: Son Histoire, ses Buts, ses Moyens d'Action." Lucien Declume, 1919.

committee, standing in direct communication with the State, with the Universities and with various industrial companies and syndicates, was thus constituted, and it immediately set to work. Commissions for economic studies and propaganda, for cultivation and collection and for the cultivation of exotic plants were formed.

The Commission for Economic Studies and Propaganda decided to form regional committees in order to procure without delay local information and to arrange between collectors and consumers the price at which the drugs should be sold.

The Commission for Collection and Cultivation busied itself with instructions to collectors, with the provision of samples, with pamphlets, and so on. The value of special drying sheds was recognized, but as rapidity was essential it was decided to employ the simple methods already in use. The representative of the Ministry of Public Instruction undertook to include in the official publications any notes or articles which the Committee might compile, and indicated his intention of sending to the provincial schools illustrated descriptive leaflets of common medicinal plants, together with the mode of collection, etc. The journals of the pharmaceutical and agricultural syndicates were also utilized for this purpose, and one number of *La Francaise* was almost entirely devoted to the subject. The necessity of furnishing all indispensible details before recommending the cultivation of any particular plant was recognized as was also the danger of extermination by indiscriminate collection.

The Commission for the Cultivation of Exotic Plants had to deal with a most extensive programme, as France has to procure the majority of the overseas drugs she uses from foreign countries. The Committee of Medicinal Plants put themselves in communication with the Directors of Agriculture in the French Colonies in order to obtain technical assistance. Particular attention was directed to the cultivation of senna in Morocco, Guinea, Dahomey and Madagascar; of the poppy in Morocco; of santonica; of buchu in Northern Africa; of *Strophanthus hispidus* and *S. Kombé* in Gaboon and Dahomey; and of cocoa in Dahomey. Soils of proposed sites for cultivation were to be analyzed, and the endeavor made to secure special facilities for artificial manures. The Commission also dealt with the important subject of cinchona. The mountains of Annam were recommended as offering favorable conditions of soil and climate, and the Governor-General of Annam was approached on the subject, the merchants present placing 6000 francs a year at the

disposal of the Commission to facilitate the carrying out of experiments. M. Alland, the premier gum importer of France, was requested by the President (Professor Perrot) to give an account of the cultivation of the gum acacia tree, the result of which was that the Commission decided to communicate with the Governor-General of Senegal with the view of developing in that colony the cultivation of gum-bearing acacias.

Soon after these decisions had been arrived at, the Committee of Medicinal Plants began to consider ways and means. A substantial income was necessary if the work of the Committee was to bear fruit. It was resolved that the endeavor should be made to obtain an annual grant of 50,000 francs from the State, and an additional 150,000 francs from those industrially interested in the work. Such an income would allow of financial assistance being given to defray the expenses of experimental trials, of technical researches in University laboratories, of investigating cultivation in the tropics, of the maintenance of an office, and so on. A grant of 50,000 francs for a year (renewable, it is hoped), was readily obtained from the State.[1]

In the meantime the Inter-Ministerial Committee had organized no fewer than fifteen Regional Committees in France, one in Algiers, and one in Tunis; in each case the Regional Committee consisted chiefly of professors of the local university or school of medicine and pharmacy or similar institutions, together with pharmacists, druggists, herb-growers, etc. As the result of inquiries, the approximate quantities required of the most important indigenous drugs had been determined, and, in conjunction with the Syndicate of Druggists, a basis of prices had been arranged.

It was now considered desirable to establish an "Office National des Matières premières pour la Droguerie, le Pharmacie, la Distillerie et la Parfumerie," and such an office was founded under the auspices of the Inter-Ministerial Committee and of the syndicates of the several industries mentioned. The object of this office is to form a Society of Study, Research and Propaganda, with the view of organizing in France a drug market and of producing drugs, so as to render the country independent of foreign markets. It is intended:

(*a*) To collect all information concerning the origin, cultivation and improvement of all plants and their products.

[1] It is understood that the additional 150,000 francs have now been subscribed, making an annual income of 200,000 francs.

(*b*) To centralize the technical, scientific and commercial information necessary for developing the commerce and chemical treatment of drugs.

(*c*) To encourage and organize in France and the French colonies the cultivation and production of raw material.

(*d*) To study all questions relating to the development and protection of the drug market.

(*e*) To give financial assistance to laboratories for all studies concerning the composition of raw material and the extraction of their active constituents—to publish the results, so that they may be utilized industrially or therapeutically.

(*f*) To organize and financially assist research expeditions with the view of investigating the sources of production, and of securing the seeds, rhizomes, etc., necessary for attempting their cultivation in France.

(*g*) To keep in communication, by means of the Ministry of Commerce, with the Agricultural Services, Technical Institutes, Ambassadors, Consulates and Commercial Agents abroad; to suggest to public authorities the initiatives to take and all actions for the extension of the production or for the exportation of raw or manufactured products.

That this admirable and extensive organization has been carried through in so short a space of time and so successfully has been largely due to the energy and foresight of Professor Perrot, of the Ecole Supérieure de Pharmacie. That it has already borne fruit is shown by the fact that Professor Perrot and M. Alland (representing, respectively, Science and Commerce), are at this moment engaged in investigating at Khartoum the cultivation of gum-bearing acacias, of senna and of other drugs, with the view of establishing them in the French colonies of Africa.

TUBERCULOSIS IN 1920.*

Lereboullet and Petit say that the prophylaxis and hygiene rather than the medical aspect of tuberculosis engrossed attention during 1919. Among the few communications on the medical features were those of the detection of the falsely labeled tuberculous.

* From *Paris Médical*, 9: 52 (Dec. 27), 1919; through *Jour. Amer. Med. Assoc.*, Feb. 28, 1920.

Compulsory declaration of tuberculosis seems to have been postponed to the day when the declaration will ensure care and assistance for the tuberculous and his family. Until this can be realized, notification serves merely to pile up statistics. E. Sergent has recently presented evidence that even tubercle bacilli in the sputum do not necessarily prove that the lesions are in process of evolution, and also that the absence of tubercle bacilli is not unfailing testimony as to the non-activity of the lesions. Radiography throws no light on the age and evolution of the lesions, but a low arterial pressure is the rule in progressing cases. A rise in temperature after muscular exercise does not necessarily mean tuberculosis, as unstable temperature may be observed under various other conditions, digestive, cardiac, etc. They agree with Sergent's dictum that there is absolutely no certain sign which tells whether tuberculous process in a well appearing person is progressing or not. He may have had hemoptysis on one occasion or a disquieting pleurisy, but has been in apparent health since. Repeated examination, the fixity of the stethoscopic and radioscopic findings, the character of the physical signs, the attenuation of the myotonic reaction, the disappearance of the tenderness of the apex, the normal blood pressure, the intensity of the tuberculin reaction, stability of the temperature, and the repeatedly verified absence of tubercle bacilli from the sputum, form a bundle of proofs on which the diagnosis can be based. The whole secret lies in repeating the examinations and comparing the findings. About 25 per cent. of the tuberculous show Roentgen shadows in the fissures between the lobes, but few physicians ever examine for these *localisations scissurales*, and yet they are an important factor in recurring pleurisy. The stethoscope reveals small and inconstant foci of dry rattling, or friction râles, which, associated with intercostal neuralgia and cough, aid in detecting these frequent and benign tuberculous lesions.

Roger demonstrated ten years ago that the absence of albumin from the sputum excluded tuberculosis. A positive albumin reaction is found in many other diseases, but Krongold has recently published evidence to the effect that the presence of peptone in the sputum is a reliable sign of tuberculosis, as the tubercle bacilli belong to the small group of microörganisms which by their proteolytic ferments split albumin into albumoses and peptones. Jousset insists that tuberculosis, as we know it, is merely the nodular form of infection by the tubercle bacillus. The latter may induce

a wide range of reactions and symptoms, and in both there is first an acute, curable, congestive stage, in which serotherapy is promising. (His method was described in these columns, August 17, 1918, p. 235.) He draws the balance sheet with a most favorable balance to the credit of the procedure in appropriate cases. Lalesque's review of his thirty years of treatment of tuberculosis at a seashore sanatorium is said to be another instructive contribution. He emphasizes the importance of the moisture of the sea air in preventing congestion and hemoptysis.

A NOTE ON COBRA VENOM AND ITS EFFECTS.*

By Herbert Clayton.

The poison excreted from the salivary glands of the cobra is regarded as one of the most deadly animal fluids known to science. When freshly excreted it is a pale yellow liquid, rather viscid, having a specific gravity of about 1.046. On exposure to air it rapidly evaporates, leaving a shining, granular residue, which has no definite crystalline form. The dried venom is readily soluble in water, and gives a feeble acid reaction. The poison has been the center of many investigations, with varied results. E. Faust claims to have shown "That the essential constituent of the cobra poison is a nitrogen free substance, belonging pharmacologically to the group of the picrotoxins, sapotoxins, and sphacelo-toxins." The victims of this reptile frequently bear very little sign of external injury, a small scratch or puncture being the only indication where the fangs have worked their havoc. The tissue lying beneath the wound is colored dark purple, and a large quantity of viscid blood-like fluid collects in the vicinity of the wound. An intense burning pain at the spot bitten is the first symptom. In man there follows an interval before fresh symptoms occur. According to Dr. Wall the average is about an hour. Once developed, the symptoms follow a rapid course. A feeling of intoxication is produced, followed by a loss of power over the limbs. The patient is bereft of speech, swallowing, and the control over the movement of the lips. The saliva is ejected in large quantities, the respiration gradually becomes slower and slower, and at length ceases.

* From *Australian Jour. of Pharm.*, Feb. 20, 1920.

PRODUCTION OF ATTAR OF ROSES IN BULGARIA.*

By Consul Graham H. Kemper,
SOFIA.

During the 12 years prior to the first Balkan War, that is, from 1900 to 1912, the manufacture of attar of roses in Bulgaria attained its highest development. During that period a large number of up-to-date factories equipped with modern steam stills were erected. The total area planted to roses increased to more than 20,000 acres. Owing to the three wars in which Bulgaria has taken part since 1912, the industry of rose culture for the production of attar of roses has experienced a decided setback. It is estimated that the present acreage planted to roses is not more than 15,000.

The average annual production of attar of roses during the period from 1900 to 1912 was about 126,800 ounces. The production fell to 85,000 ounces in 1917, 85,000 ounces in 1918, and 52,000 ounces in 1919, and it is predicted that the present year's yield will show a further decrease.

During the war, owing to the fact that Bulgaria was cut off from the principal markets—New York, London and Paris—the stocks of attar of roses remaining unsold increased until they reached a total of about 275,000 ounces, about 40 per cent. of which is said to have been of inferior quality. About one-third of this total available stock was sent to the United States early in 1919 in part payment for flour imported from the United States; also some 17,000 ounces were shipped to the United States during the last quarter of the year. It is estimated that the present available stock in Bulgaria hardly exceeds 50,000 ounces, worth about $500,000.

It is stated by one of the best-known producers that under existing conditions the production of attar of roses is not a paying industry. Owing to the high prices for other farm products, at least 5,000 acres of rose gardens have been abandoned and the land planted to more remunerative crops, especially tobacco. Centralization, by the formation of a syndicate for the purpose of eliminating unnecessary expenses, is spoken of as the only course that will save the industry.

* From *Commerce Reports*, March 6, 1920.

NEWS ITEMS AND PERSONAL NOTES.

TESTIMONIAL DINNER TO PROF. COOK.—The members of the Philadelphia Branch of the American Pharmaceutical Association and friends of Prof. E. Fullerton Cook tendered him a testimonial dinner at the City Club of Philadelphia on Friday evening, May 28th, in honor of his being elected chairman of the U. S. P. Committee of Revision. Many of the members were accompanied by their wives. The presence of Mrs. Cook and likewise the Rev. Cook and Mrs. Cook, father and mother of the guest of honor, added greatly to the sentiment and enjoyability of the occasion.

Prof. Julius W. Sturmer acted as toastmaster and introduced the speakers of the evening.

Dr. Harvey W. Wiley, of Washington, D. C., President of the Pharmacopoeial Convention for the Ninth Revision of the U. S. P., was the first speaker. He made a very happy and witty talk in which he paid a glowing tribute to the sacrificing work of the late Prof. Remington and congratulated the Pharmacopoeia upon the selection of such an able and virile new chairman for whom he predicted a very successful career in connection with the work of revision.

Prof. Charles H. LaWall and Prof. H. C. Wood as former Acting Chairmen of the Committee of Revision, expressed their appreciation of the selection of Prof. Cook as the Chairman of the Committee for the Tenth Revision and upon the successful inauguration of the work and the progress that has already been made under his leadership.

The Rev. Cook expressed his gratification that his son had developed by reason of the training of his mother into a professional gentleman with a promising and useful career and he was pleased and gratified to see the honor and the tributes which were paid to him upon this occasion.

George M. Beringer was introduced as the preceptor of Prof. Cook when he was a pharmacy student at the Philadelphia College of Pharmacy and spoke very highly of E. Fullerton Cook's personal characteristics when a student and assistant in his store. The ease with which he made and held friends and his courteous treatment of customers by which he immediately gained their confidence, were among the qualifications that were early demonstrated in his store experience, and this as well as his earnestness and perseverance

in his studies and work have been personal characteristics upon which his success had been largely built. The speaker referred to the tempestuous waves of the pre-convention period and the radical views of certain delegates that threatened danger to the voyage of "Ship Revision" and how with the election of Prof. Cook as chairman this storm was immediately calmed and a happy and successful voyage was now prophesied.

Dr. Harry Vin Arny, of New York, extended his congratulations and expressed the sentiment that the members of the Committee of Revision had arrived at the conclusion that Prof. Cook was the most logical man both as to experience and personal qualities to act as chairman of the committee and predicted that he would be continued permanently as chairman for the balance of his days.

Dr. E. G. Eberle spoke of the general approval that had followed the selection of E. Fullerton Cook as chairman, and of the conference in which the qualifications essential for the chairmanship of the Revision Committee had been discussed and in which it was concluded that Prof. Cook possessed the requisite energy, stability and ability called for.

Among the other speakers of the evening was A. Louis Seift, a college classmate, who made some humorous references to the Class Book and prophesies therein as to the future of the man we were now honoring when he was a student at the P. C. P.

Dr. R. P. Fischelis, Mr. O. W. Osterlund, Dr. C. B. Lowe and Mr. Ambrose Hunsberger likewise added their messages of congratulation.

In response Prof. E. Fullerton Cook told of some of his early experiences in the drug store and his association with the members of the faculty of the Philadelphia College of Pharmacy and members of the Committee of Revision. He referred to a recent visit he had made to one of the government departments during which some of the self-satisfaction of the Chairman of the Committee of Revision was brushed down and his ardor at the recent elevation was damped by the reception he had received when he attempted to discuss a pharmacopoeial problem with an official of the departments.

Prof. Cook paid a high tribute to the training and example of his father and mother and to the habits and principles which they had very early grafted into his career and which laid the foundation for the measure of success that had come to him. His association with

Prof. Remington, and especially that relating to the pharmacopoeial revision was invaluable to him as it had given him an acquaintance with the methods of revision and with the personal characteristics of many of the men who were engaged in pharmacopoeial and research work. He appreciated greatly the promised coöperation and unanimity of spirit that appeared to be pervading the entire Committee that had been selected for the tenth revision.

THE DU PONTS TO MANUFACTURE SYNTHETIC CAMPHOR.—Mr. R. M. Carpenter, Vice-President of the E. I. du Pont de Nemours Company, has recently announced that his company has made such progress in the manufacture of synthetic camphor that they are "practically out of the woods," and that this will be of great advantage to all manufacturers of celluloid or similar products. This will relieve the demand for natural camphor for industrial purposes and make it more completely available for medicinal use and should result in a material reduction in the price of the native product.

THE MONSANTO CHEMICAL WORKS ESTABLISHES AN ENGLISH BRANCH.—The Monsanto Chemical Works of St. Louis, Mo., has announced that they have amalgamated in Great Britain with the old established firm of R. Graesser, Ltd., of Ruabon, N. Wales, who were leading manufacturers of phenol and coal tar derivatives. The amalgamated firm will be known as the Graesser-Monsanto Chemical Works, Ltd., with a capital of £400,000 fully paid. The purpose is to continue not only the manufacture of the phenols and cresols formerly made by the Graesser Company but likewise to manufacture in the plant in Wales a full line of chemicals as manufactured by the Monsanto Chemical Works in America.

LEHN & FINK, INC., ANNOUNCE FURTHER BUSINESS ADVANCES.—Mr. Wm. J. Gesell and Mr. Robert Plaut, officials of this drug firm, have sailed for Europe upon a business trip. They will investigate market conditions abroad and secure needed drug products for the American market.

Mr. Edward F. Cunningham is now connected with this firm, paying special attention to the Latin-American field. He expects to spend the summer in a trip to Cuba, Haiti, San Domingo, Porto

Rico and Central American countries, and in the near future he contemplates a business trip to South America.

THE UNITED STATES IN NEED OF CHEMISTS.—The Civil Service Commission announce that an examination open to all male citizens of the United States meeting the requirements will be held on July 6th for organic chemists and inorganic chemists. They announce vacancies in the Philippine service at $3,000 per annum or higher. "The duties of these positions will involve a certain amount of routine work but there will be opportunity for individual research work and appointees must be capable of performing research work." Eighty per cent. will be allowed for education and experience and 20 per cent. for publication or theses to be filed with the application. The applicant must have graduated from a four-year high school course or possess an education equivalent and in addition graduated with a bachelor's degree from a college or university, such degree requiring the completion of at least 118 additional semester credit hours of which at least 30 must have been in chemistry and likewise at least one year of subsequent experience in research work either in graduate work or in a commercial laboratory. By the term semester credit hour is meant one lecture or recitation hour or two laboratory hours per week per semester. The applicants entering for the position of organic chemist must have had training and experience in organic chemistry and those entering for position of inorganic chemist must have had training and experience in general inorganic and physical chemistry. A thesis showing original work or publication of such work must be submitted. The applicant must be under 40 years of age and submit with the application an unmounted photograph taken within two years with his name written thereon. Applications should be made to the United States Civil Service Commission, Washington, D. C.